Pellet boiler

englisch

BIOCOM

Installation instructions

BC-A-00-00-00-01-IAEN

EN-B31-007-V10-0711

GUNTAMATIC

Information on this documentation

Please read through this documentation carefully.

It is intended as a reference document and contains important information on the design, safety, operation, maintenance and care of your heating system.

We are always looking to improve our products and documentation. Any ideas and suggestions you may have will be gratefully received.

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It is important that you pay particular attention to the safety issues highlighted in the text by these symbols.

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Installation instructions

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1 Introduction

1.1 Safety instructions

BS-01-01-00-00-01-IAEN

GUNTAMATIC heating systems represent state-of-the-art technology and meet all applicable safety regulations. Incorrect installation can endanger life and limb. Heating boilers are combustion systems and are potentially dangerous if handled incorrectly. Installation, commissioning and servicing must, therefore, only be carried out by adequately qualified technicians observing all regulations and the manufacturer's instructions.

1.2 Guarantee and warranty

BS-01-02-00-00-01-IAEN

The manufacturer's guarantee is subject to correct installation and commissioning of the heating system. Defects and damage caused by incorrect installation, commissioning or operation are not covered by the guarantee. To ensure that the system functions as intended, the manufacturer's instructions must be followed. Furthermore, only genuine replacement parts or parts explicitly approved by the manufacturer may be fitted to the system.

1.3 Commissioning

BS-01-03-00-00-01-IAEN

Commissioning of the boiler must be carried out by an authorised GUNTAMATIC specialist or other qualified persons. They will check whether the system has been installed according to the plans, adjust the system settings as required and explain to the system operator how to use the heating system.

1.4 Site requirements

BS-01-04-00-00-01-IAEN

When establishing the site requirements, it is absolutely essential to take account of the locally applicable planning, building and implementation regulations and the dimensional specifications in the fitting guidelines, installation examples and technical data. Compliance with the locally applicable regulations and the correct implementation of the measures required on site are solely the responsibility of the system owner and are a requirement of the manufacturer's guarantee. GUNTAMATIC provides no guarantee of any kind for any type of site work. Without making any claims as to completeness or non-applicability of official requirements, we recommend the following specifications based on the Austrian Guidelines pr TRVB H 118:

1.4.1 Fire safety

BS-01-04-01-00-01-IAEN

If the installation site is not subject to any other fire safety requirements, the GUNTAMATIC minimum fire safety requirements must always be observed. If the installation site is subject to stricter requirements than the minimum fire safety requirements specified here, then the stricter requirements must always be observed without exception.

Caution: Compliance with the GUNTAMATIC minimum fire safety requirements is subject only to verification by the operator. The operator alone is responsible for strict compliance. Verification during commissioning is not provided for.

Caution: **National regulations must also be complied with**.

National regulations

Austria: F90/T30

State legislation of the federal states
Technical Directive on Preventative Fire Safety pr TRVB H118

Germany: No requirements for systems up to 50 kW

Standard boiler regulations (M-FeuVO)
Hessen and Saarland – in these states §16 FeuVO Hessen applies

Switzerland:
Fire safety regulations (www.vkf.ch)

France:
Relevant fire safety authority

Italy:
Relevant fire safety authority

Minimum fire safety requirements

BS-01-04-01-02-01-IAEN

Boiler room

Floor of concrete construction, either bare or tiled. All materials for floor, walls and ceiling must be fire-resistant to F60 rating. If a fabric hopper is installed in the boiler room (not allowed in all countries), the floor walls and ceiling must be F90-rated. The boiler room door must be a Class T30 fire door which opens in the direction of escape and is self-closing. Connecting doors to the fuel storeroom must also be Class T30 fire doors, self-closing and lockable. There must be no direct connection to rooms in which flammable gases or liquids are stored (e.g. garage).

BS-01-04-01-03-01-IAEN

Fuel storeroom

The same minimum fire safety requirements apply as for the boiler room.

Storeroom doors/hatches: Storeroom doors/hatches must be fire safe to Class T30, self-closing and lockable. There must be a warning sign carrying the message "Do not enter when feeder system is running" attached to the storeroom door/hatch.

Fireproof collars: If the storeroom is not situated directly adjacent to the boiler room, a fireproof collar must be fitted to the extraction and air return pipes at their wall exit points from the boiler room. If the outfeed auger goes directly into the boiler room, it is factory fitted with a special fire safety lining. No additional fireproof collars are required on the air pipes. If the outfeed auger is sited entirely inside the storeroom (i.e. if the outfeed auger does not extend out of the storeroom), fireproof collars must similarly be fitted to the extraction and air return pipes at their wall exit points from the storeroom.

Manual fire extinguisher: If 50 m³ of fuel or more can be stored, a manually operated fire extinguishing facility must be installed. It must be protected against freezing and connected to a pressurised water pipe (DN20 conduit). The discharge point must be located directly above where the fuel outfeed channel exits the storeroom. The fire extinguishing facility must be identified by a sign carrying the inscription "Fuel storeroom fire extinguisher".

Filler pipes: Filler pipes through rooms where there is a fire risk must be provided with Class F90 cladding.

1.4.2 Boiler room requirements

PH-01-04-02-01-01-IAEN

Combustion air supply

The pressure in the boiler room must not be less than 3 Pa (0.3 mm H_2O). The air vents for boiler rooms must have a clear, net cross-sectional area of at least 200 cm² and must not be sealable. With combustion boiler systems with a fuel heat output upwards of 50 kW, the net, clear cross-sectional area must be increased to at least 5 cm² per kW rated output according to the combustion air requirement of the boiler system. The air supply ducting must connect directly to the outside and if the ducting passes through other rooms, it must be jacketed to Class F90. On the outside of the building, air vents must be covered by a protective grille with a mesh size of > 5 mm. The supply of combustion air should, if possible, enter at floor level in order to prevent cooling of the boiler room.

BS-01-04-02-02-01-IAEN

Electrical installation

The lighting and the electrical wiring in the boiler room must be permanently installed. There must be a clearly marked emergency off switch in an easily accessible position outside the boiler room, close to the boiler-room door.

BS-01-04-02-03-01-IAEN

Fire extinguisher

A hand-held fire extinguisher (6kg gross weight, EN3) must be mounted outside the boiler room near the boiler-room door.

BS-01-04-02-04-01-IAEN

Protection against freezing

The boiler room, pipes carrying water and any district heating pipes must be protected against freezing.

BC-01-04-02-05-01-IAEN

Minimum room size

PH 30, BC 40, PH 50 at least 230(240) x 240 cm (W x L)

BC 75, BC 100 at least 230(240) x 270 cm (W x L)

(Dimensions in brackets refer to systems with automatic ash extraction system.)

BC-01-04-02-06-01-IAEN

Minimum room height

BC 30, BC 40, BC 50 at least 225 cm

(with heat exchanger cover removed at least 210 cm)

BC 75, BC 100 at least 240 cm

(with heat exchanger cover removed at least 230 cm)

BC-01-04-02-07-01-IAEN

Clear access opening

BC 30, BC 40, BC 50 at least 80 x 170 cm (W x H)

BC 75, BC 100 at least 100 x 190 cm (W x H)

(Dimensions refer to boiler with grate cleaner motor and stoker removed.)

Boiler dimensions

BC-01-04-02-08-01-IAEN

Without ISO

BC 30, BC 40, BC 50 at least 75 x 165 cm (W x H)

BC 75, BC 100 at least 90 x 180 cm (W x H)

(Dimensions refer to boiler with casing, stoker, flue connecting pipe and ash box removed.)

1.4.3 Flue requirements

BS-01-04-03-00-01-IAEN

The flue must be matched to the system in order to ensure economical and trouble-free operation.

BS-01-04-03-01-01-IAEN

Important

Use heat-insulated fireclay flues that are insensitive to damp.

The flue gas temperature can be less than 105°C.

BS-01-04-03-02-01-IAEN

The system must only be connected to the flue if the flue meets the legal requirements and the technical specifications. The flue must be matched to the boiler output and dimensioned in accordance with DIN 4705. In order to be able to accurately dimension the flue, the calculations must be based on the flue gas figures. When designing new flues, high thermal insulation chimneys (DIN 18160 T1 heat transmission resistance group I) or suitable **fireclay flues** that are insusceptible to damp and have general building regulation approval should be used. It is advisable to involve those responsible for approving the flue system early on in the planning phase.

BS-01-04-03-03-01-IAEN

Flue height

The minimum flue height is 5 - 10 m depending on boiler output. The flue must terminate at least 0.5 m above the highest part of the building. In the case of flat rooves, the flue must terminate at least 1.5 m above the surface of the roof.

Flue dimensioning data

Dimension the flue for rated output.!

BC-01-04-03-05-01-IAEN

(Averaged figures with used heat exchanger)

Rated output

Type	Flue gas temp.	CO_2	Mass flow rate	Required draught
BC30	160 °C	12,5 %	0.024 kg/s	15 pascals
BC40	170 °C	13,0 %	0.030 kg/s	15 pascals
BC50	170 °C	13,0 %	0.030 kg/s	15 pascals
BC75	190 °C	13,0 %	0.042 kg/s	15 pascals
BC100	190 °C	13,0 %	0.055 kg/s	15 pascals

Sub-maximum output

Type	Flue gas temp.	CO_2	Mass flow rate	Required draught
BC30	100 °C	9,5 %	0.010 kg/s	10 pascals
BC40	105 °C	10,0 %	0.012 kg/s	10 pascals
BC50	115 °C	10,0 %	0.009 kg/s	10 pascals
BC75	120 °C	10,0 %	0.013 kg/s	12 pascals
BC100	120 °C	10,0 %	0.017 kg/s	12 pascals

1.4.4 Fuel store requirements

BS-01-04-04-01-01-IAEN

Access doors/hatches

Above-ground fuel stores must be provided with a door or hatch that opens outwards. So that the fuel cannot run out if the fuel store is opened by mistake, the inside of the access door/hatch opening must be covered with boarding (which must be removable from the outside). Due to the risk of injury when the system is in operation, access doors/hatches must be lockable and kept locked when the system is in operation. There must be a warning sign carrying the message "Do not enter when feeder system is running" attached to the access door/hatch.

Electrical equipment

FLEX system BS-01-04-04-02-01-IAEN

Electrical equipment is prohibited in the fuel storeroom.

BOX system

Electrical equipment is permitted in the room in which the system is installed. Light bulbs must not be fitted in close proximity to the fabric hopper.

BS-01-04-04-03-01-IAEN

Filler set

The filler pipes must be earthed.

FLEX system

At least 2 filler pipes must be installed. Minimum separation 0.5 m.

BS-01-04-04-04-01-IAEN

Installation in cold areas

If installed in cold areas, vacuum pipes and outfeed unit must be adequately insulated (frost-proof).

Risk of condensation formation

Structural requirements

FLEX system BS-01-04-04-05-01-IAEN

The enclosing walls must be capable of withstanding the possible static loads created by the fuel and the pressure when filling the fuel store.

BOX system

It is imperative that the load-bearing capacity of the base is adequately dimensioned as, when the hopper is completely full, heavy loads act on the points on which the unit rests.

BS-01-04-04-06-01-IAEN

Erecting BOX system

Indoor installation: The fabric hopper must always be installed separately from the boiler in a different room. In some countries, the fabric hopper may be installed in the same room as the boiler if a minimum separation of 1 m between the fabric hopper and the boiler can be maintained and the fuel heat output remains below 50 kW.

National legislation must also be observed!

Outdoor installation: If erected outdoors, no F90 lining is required if the minimum distances for fire flashover are maintained. The fabric hopper must be protected against rain, damp and UV light.

BS-01-04-04-07-01-IAEN

Wall penetration

If there is an auger conveyor passing through the storeroom wall, the gap in the wall must be filled with mineral wool and sealed by means of the non-contact (sound insulation) finishing plates provided.

BS-01-04-04-08-01-IAEN

Filling the fuel store

When pressure-filling the fuel store from a tanker truck, the air pumped in must be drawn out of the fuel store. Extraction is the responsibility of the supplier.

BS-01-04-04-09-01-IAEN

Damp-proofing

The fuel must be protected against contact with water or damp floors/walls. The storeroom must remain dry all year round. If there is a risk of temporarily damp walls, fitting a back-ventilated facing to the walls and lining them with wooden material may be required.

2 Installation and assembly

2.1 Delivery

BS-02-01-00-00-01-IAEN

The boiler system is delivered packed in a wooden crate wrapped in foil. Please check that the delivery is complete according to the delivery note and in perfect condition.

Deficiencies — Please make a note of the deficiencies identified directly on the delivery note and contact the supplier, heating installer or our Customer Service.

2.2 Carrying to installation site

BS-02-02-00-00-01-IAEN

The system is delivered on a wooden pallet and can be lifted and carried to the installation site using a pallet truck.

Carrying in dismantled — The boiler body can be dismantled into parts for carrying in. If that is done, a person authorised by GUNTAMATIC must be consulted.

2.3 Positioning and aligning the boiler

PH-02-03-00-00-01-IAEN

Keep to the minimum wall clearances specified by the system planner and manufacturer. If important details are missing, please refer to the planning documentation or ask our Technical Support. Position the system as close as possible to the flue to avoid having a long flue connecting pipe. The system must be accessible from the left or right side.

Clearance on left — at least 40 cm (preferably 70 cm)

Clearance on right — at least 40 cm

Clearance at front — at least 80 cm (leave space for fuel box door to open)

Clearance at back — at least 50 cm (with auto ash extraction system, at least 60 cm)

Floor clearance — Set the clearance between the boiler base and the floor to the required minimum of 35 mm by unscrewing the adjustable feet on the boiler base.

Set the boiler at a slant — Unscrew the rear adjustable feet slightly further so that the boiler is slightly **higher at the rear**. That will allow the air inside the boiler to escape easily when the system is filled.

2.4 Plumbing connections

BC-02-04-00-00-01-IAEN

Biocom 30/40/50

A → Sensor for temp. relief valve, ½"

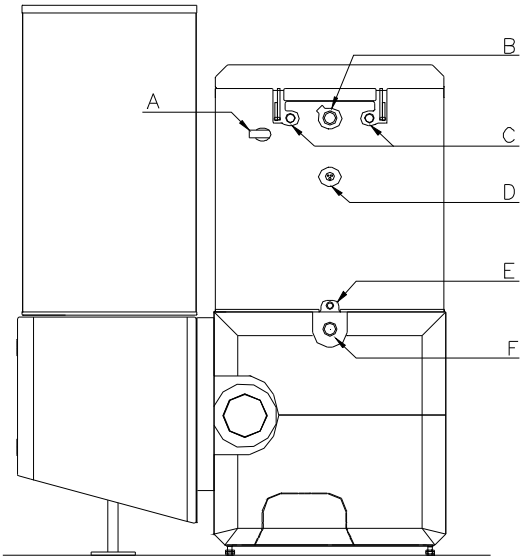
B → Heating return, 1¼"

C → Temperature-relief heat exchanger, ¾"

D → Boiler sensor, safety temperature limiter (STL)

E → External thermostat/drain, ½"

F → Heating flow, 1¼"



Biocom 75/100

A → Sensor for temp. relief valve, ½"

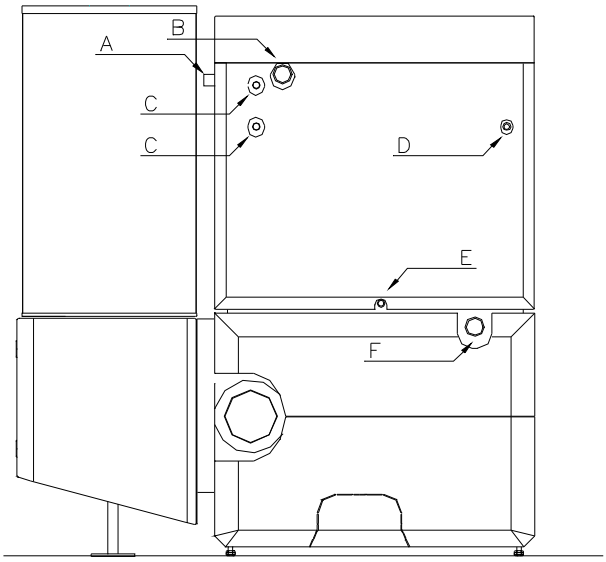
B → Heating flow, 2"

C → Temperature-relief heat exchanger, ¾"

D → External thermostat, ½"

E → Drain

F → Heating return, 2"



BC-02-04-00-01-01-IAEN

Temperature-relief heat exchanger

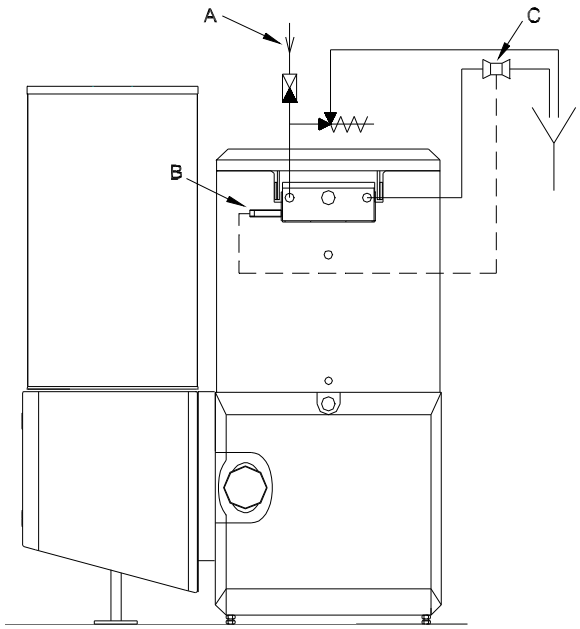
The maximum permissible boiler operating temperature is 110°C. In order to prevent the maximum allowable operating temperature being exceeded, connection of a temperature-relief valve conforming to Austrian standard ÖNORM 8131 and DIN 4751 and with a response temperature of 95°C is required. The supply pressure must be at least 2 bar but no more than 6 bar.

Biocom 30/40/50

A → Cold water supply for Temperature-relief heat exchanger

B → Sensor for temp. relief valve, ½"

C → Temp. relief valve, 95°C

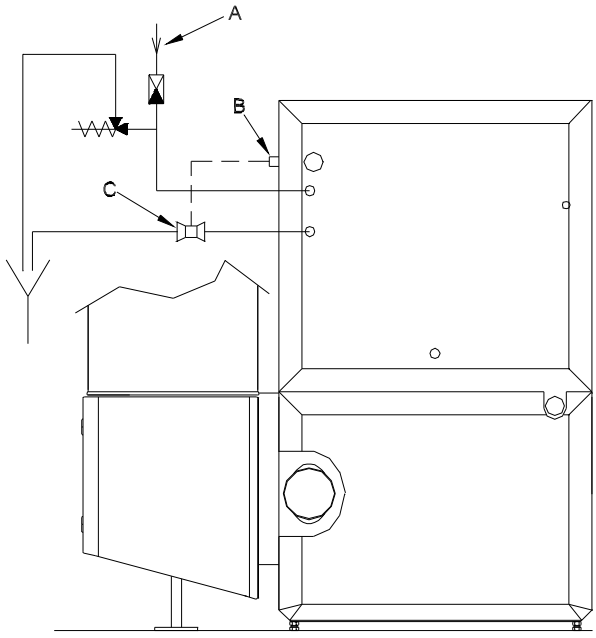


Biocom 75/100

A → Cold water supply for Temperature-relief heat exchanger

B → Sensor for temp. relief valve, ½"

C → Temp. relief valve, 95°C



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Thermal store

Installing a thermal store is not necessary as the boiler is operated by a modulating control system and the system can be quickly shut down. However, if the required continuous heat output in the summer months is below 10 kW for systems up to 50 kW, or 22 kW for systems upwards of 50 kW, combination with a thermal store is necessary for reasons of efficiency.

BC-02-04-00-03-01-IAEN

Return boost

The boiler return temperature must be at least 40°C in systems up to 50 kW and 45°C for systems upwards of 50 kW, and must be held at the required level by a bypass pump between the boiler flow and return pipes. If a thermal store is connected, the boiler return temperature must be at least 55 °C, which must be ensured by a return boost set as shown in the plumbing diagram. If this requirement is not complied with, there is an increased risk of corrosion and guarantee entitlement will be lost as a result. Connect the return boost set precisely as specified in our plumbing diagrams.

Important

The dimensioning of the return boost pump (set) is designed for the arrangements shown in GUNTAMATIC plumbing diagrams. If additional components such as heat meters are incorporated in the system plumbing, or if the overall thermal store pipe run (flow and return) is more than 30 m, re-dimensioning of the boiler charging pump (HP0) may be necessary.

SY-02-04-00-04-01-IAEN

Expansion vessel

The boiler operates in a sealed heating system and must be provided with an expansion vessel for pressure compensation. To calculate the expansion volume, the volume of the system when cold must be known. Please select the expansion vessel on the basis of the manufacturer's specifications. The expansion volume of the system is calculated as follows:

System volume x Expansion factor x Additional allowance factor

- Expansion factor for wood-fuel boilers = 0.03
- Additional allowance factor = 3.0 for systems under 30 kW
- Additional allowance factor = 2.0 for 30-150 kW systems
- Additional allowance factor = 1.5 for systems over 150 kW

Example calculation: 2500 litres x 0.03 x 3 = 225 litres

BS-02-04-00-05-01-IAEN

Plastic piping

If plastic piping for underfloor heating or district heating pipes are connected, they must be protected against excessive temperatures by using a limiting thermostat for the circulation pumps.

BS-02-04-00-06-01-IAEN

Pump selection

The choice of pump must be made by the installer or building technology planner on the basis of the friction data, the pipe cross-sectional area and the required delivery pressure for the piping system planned.

2.5 Filling and bleeding the system

BS-02-05-00-00-01-IAEN

The system is filled with water from the domestic supply. Please note the guidelines on "Corrosion and boiler protection in heating and domestic water systems".

Water quality

The water quality of hot water systems with flow temperatures of max. 100°C is subject to VDI 2035. According to VDI 2035 Part 1, "Avoiding damage to hot water systems", which comply with EN12828, the first-fill and replenishment water, must be conditioned (preferably softened) if the following overall hardness limits [°dH] according to total heat output (kW) are exceeded:

- < 50kW: with circulating flow heaters, if °dH > 16.8
- 50 to 200 kW: if °dH > 11.2
- 200 to 500 kW: if °dH > 8.4
- > 500kW: if °dH > 0.11

Water heater

If a water heater is also used in addition to the GUNTAMATIC boiler, it should be filled according to the installation instructions for it.

Filling the system

- Match the pressure of the system when cold to the air charge pressure of the expansion vessel
- Check the operating pressure on the pressure gauge

Bleeding the system

- Switch off and bleed circulation pumps.
- Bleed boiler by opening the bleed valve on the boiler and allowing air to escape until water runs out.
- Bleed radiator heating system (if present) by opening the bleed valve on every radiator and allowing air to escape until water runs out.
- Bleed underfloor heating system (if present) by opening each heating circuit and flushing through thoroughly until there are no more air bubbles in the heating circuit pipes.
- **Important**: perform sequence in the correct order!

  Start bleeding in the cellar or on the ground floor and finish in the attic.
- Check the system operating pressure on the pressure gauge and add more water if necessary.
- Restart circulation pumps.

Only systems that have been properly bled guarantee effective conveyance of heat.

2.6 Connecting the flue

BC-02-06-00-01-01-IAEN

The boiler is connected to the flue by means of a flue connecting pipe which must be gas-tight and insulated between the heating boiler and the chimney (insulation thickness 50 mm).

Flue connecting pipe

The following diameters should be used:

- BC 30, BC 40, BC 50 dia. = 150 mm
- BC 75, BC 100 dia. = 180 mm

Flue connecting pipes longer than 4 m or with more than 3 bends:

- BC 30, BC 40, BC 50 dia. = 160 mm
- BC 75, BC 100 dia. = 220 - 250 mm

The hole in the wall for connecting the flue pipe must be lined with a built-in double-skinned lining tube or fireproof material. The flue connecting pipe must rise upwards from the boiler to the flue at an angle of at least 6° and be connected with gas-tight joints. An inspection cover must be provided for cleaning the flue connecting pipe.

PH-02-06-00-02-01-IAEN

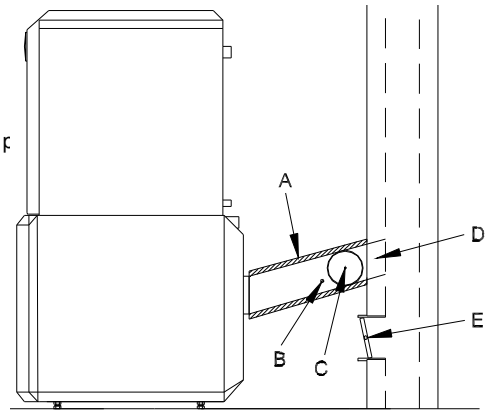
A → Flue connecting pipe insulation (50 mm)

B → Testing point for flue draught
(Distance from boiler = at least 3 x dia. of flue connecting p

C → Alternatively: Flue draught regulator in flue connecting pipe
(As close as possible to junction with the flue)

D → Flue connecting pipe, min. gradient 6°

H → Flue draught regulator/pressure-surge compensator in flue
(Preferred fitting arrangement)



BS-02-06-00-03-01-IAEN

Note

- The flue connecting pipe musty be gas-tight
- An energy-saving flue draught regulator with pressure-surge compensator (Class RE) must be fitted
- Insulate the flue connecting pipe
- Do not brick in the flue connecting pipe (noise transmission)
- The flue connecting pipe must not extend into the flue

2.7 Energy-saving flue draught regulator and pressure-surge compensator

BS-02-07-00-00-01-IAEN

Fitting an energy-saving flue draught regulator/pressure-surge compensator (Class RE) is absolutely imperative.

Purpose

- To ventilate the flue when the system is not in operation
- To compensate for pressure surges
- To regulate and limit the flue draught

Fitting requirement

The energy-saving flue draught regulator must be fitted in accordance with the local regulations, preferably in the flue approx. 0.5 m below the point where the flue connecting pipe joins or alternatively in the flue connecting pipe close to its junction with the flue.

Flue draught setting:

- Adjusting the flue draught is only of any use at outside temperatures below +5°C.
- The system must have been in operation for at least an hour
- Ensure there is sufficient demand for heat for the boiler to be run at rated output for at least 15 minutes
- Measure the flue draught between the boiler and the flue draught regulator (distance of measuring point from boiler ideally 3 x flue diameter from connection between boiler and flue connecting pipe).

Flue draught

The flue draught should not differ by more than +/- 3 pascals from the figure specified in the flue dimensioning data. If the flue draught cannot be reduced to the required figure, either a larger draught regulator should be fitted or an additional flue baffle fitted between the flue and the draught regulator.

Too much flue draught

May cause the flue gas temperature to increase and accelerate combustion as a result. Poor boiler output adjustability, increased dust discharge and malfunctions can result.

Too little flue draught

Performance problems, incomplete combustion and malfunctions when operating below rated output can result.

2.8 Fuel outfeed installation

2.8.1 FLEX system

BS-02-08-01-00-01-IAEN

Important → **Ensure the inlet opening is on the correct side.**

A → Conveying direction

B → Inlet opening always this side

C → Direction of rotation

D → Scraper

E → Floor mounting plate

F → Check dimension 56 mm

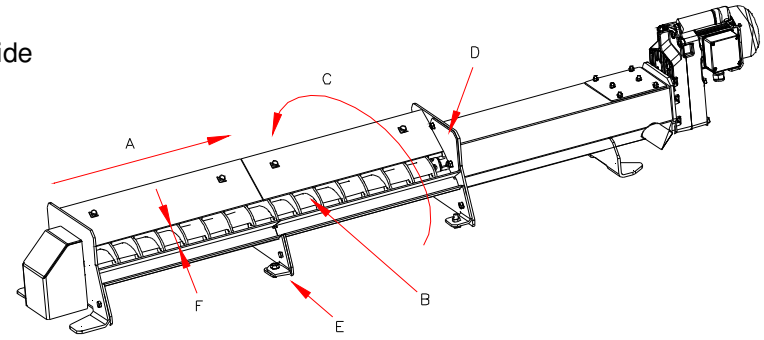


Fig. A

Installing the outfeed auger (Fig. A)

1. Feed the drive unit (1) of the fuel outfeed auger through the hole (W 330mm x H 250mm) in the storeroom wall.
2. Depending on the auger length, join auger sections complete with conveyor trough (2) to the drive unit (1) from the storeroom end. **Important**: join the auger sections together so that the auger slope continues evenly. Afterwards securely fix the auger trough flange joint using the M8x30 bolts supplied (3) and locking washers. Make sure that the auger troughs are joined together so as to be perfectly flush on the inside. Screw the flange plate (4) and bearing on the end of the outfeed auger (if not pre-fitted).
3. Slightly unscrew the grub screws (5) on the bearing and attempt to push the auger towards the drive unit as far as it will go. Then re-tighten the grub screws.
4. After assembly: rotate the auger to check that is running true (maximum allowable auger run-out in the centre is 3 mm).
5. Position the assembled outfeed auger so that the drive unit extends at least 420 mm (see Fig. B) out of the storeroom wall.
6. Screw the conveyor trough securely to the storeroom floor.

   Important: the conveyor trough must be aligned flush using the floor mounting plates (E) and screwed securely to the floor so that it is straight and has no sags or humps.

7. Fill the gap (6) in the wall around the conveyor with mineral wool. Cover the hole on both sides of the wall with the masking plates supplied (7), fitting them so that they do not touch the conveyor.

FLEX fuel outfeed system

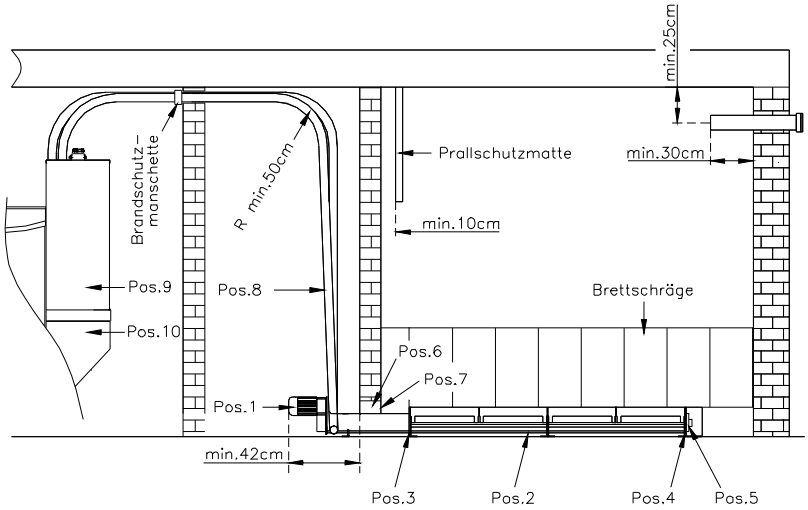


Fig. B

Fitting the vacuum extraction and air return pipes (Fig. 9)

1. Connect the vacuum hoses (8) from the cyclonic separator (9) or fan to either of the vacuum hose connection spigots on the auger (routing the hoses so that the bends are as gradual as possible).

   Important: the minimum curvature radius for routing the hoses is 0.5 m. In addition, the hoses should not sag. An adequate number of fixings should be used.

2. The vacuum and air return pipes (8) must be secured to the cyclonic separator (9) and the drive unit (1) and made air-tight using the pipe clips supplied.

   Important: check for air-tightness the first time fuel is drawn in. Leaking joints can cause problems with filling.

3. Do not route the air hoses for the fuel delivery system outdoors or through cold rooms (possibility of condensation forming in the vacuum hoses). If necessary, insulate the vacuum hoses adequately.

Important → It is imperative that the vacuum and air return pipes are earthed. To do so, separate out the copper wire at the ends of the pipes joining the vacuum unit and the conveyor drive unit and connect them to the earthing connections on the vacuum unit and the outfeed unit.

Important → The fuel outfeed conveyor must be completely emptied (vacuumed out) every 3 years at least.

Fitting the boarding in the FLEX system storeroom (Fig. 10)

A → Batten

B → Board trimmed by 3 cm

C → Supporting batten (10 x 10)

D → Wooden boards, planed, or blockboard (3 cm)

E → Square batten, 10 x 10

F → Square batten, 10 x 10

L → Reinforcing batten (C) required if L >/= 1500 mm

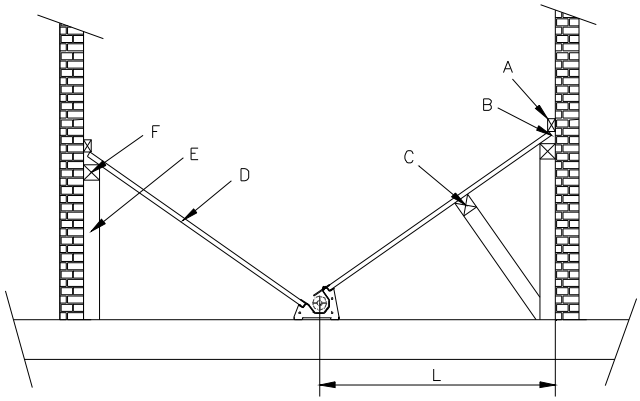


Fig. C Viewed from conveyor drive unit facing towards storeroom

Fit boarding in storeroom as follows:

1. Locate a length of roof batten in the slot in the auger to mark out the 35° slope.
2. Mark the height of the slope on the wall and screw square batten (F) (e.g. 10 cm x 10 cm) to the wall approx. 3 cm below the marked height of the slope.
3. Support horizontal batten with uprights every 1.5 m. If the distance between the auger and the wall is greater than 1.5 m, additional supporting battens (C) must be provided.
4. Planed timber boards or blockboard panels 3 cm thick (D) should be cut approx. 3 cm short so that when they are slotted into the auger a gap is left between the board and the wall.
5. Do not screw every board in place and instead screw a horizontal batten (A) to the wall across all the boards.
6. If the auger does not extend to the end of the storeroom, a 35° slope should also be constructed from the end wall to the conveyor.
7. If the conveyor sections do not reach up to the exit point through the wall, an additional substructure must be used up to the wall.

Filler set

The pellet store requires at least 2 filler pipes (for pressure-filling and air extraction).

- Whenever possible, the filler pipes should be placed centrally in the shorter side of the storeroom.
- Minimum distance from ceiling and walls 25 cm.
- Required hole diameter in wall 130-150 mm.
- Fill gap with (waterproof) expanding foam filler.
- Ensure the filler pipes are fixed firmly in place.
- The filler pipes must be earthed to the earthing conductor (1.5 mm^2).

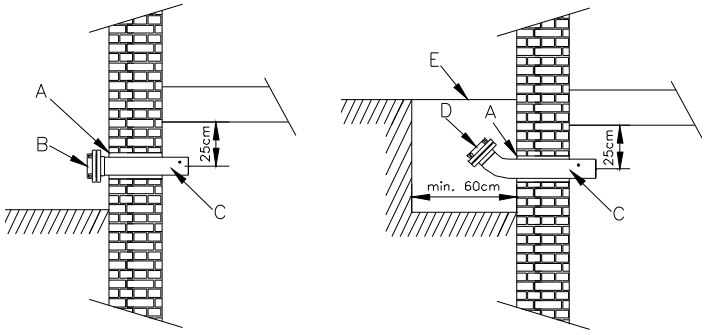
A → PVC pipe, 150 mm dia.

B → Filler set, straight

C → Steel pipeinternal dia. 100 mm
externaldia. 108 mm

D → Filler set, 45° elbow

E → Light shaft



Access doors/hatches

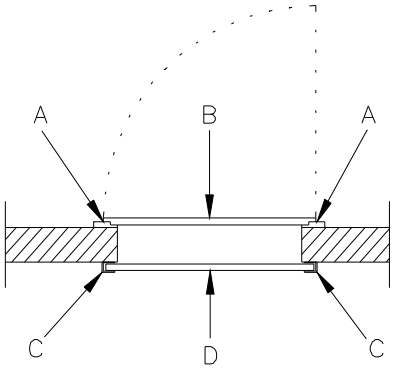
Above-ground fuel stores must be provided with a door or hatch that opens outwards. So that the fuel cannot run out if the door/hatch is opened by mistake, the inside of the access door/hatch opening must be covered with boarding (which must be removable from the outside). Due to the risk of injury when the system is in operation, access doors/hatches must be lockable. There must be a warning sign carrying the message "Do not enter when feeder system is running" attached to the access door/hatch. The door/hatch opening must be provided with a (dust-proof) seal around its perimeter.

A → Seal

B → Fire door (hatch), Class T30

C → U or Z-section framing

D → Wooden boards (at least 3 cm thick)



2.8.2 BOX system

BS-02-08-02-00-01-IAEN

The BOX fabric hopper system is installed as described in the separate installation instructions. They are supplied with the BOX system.

3 Electrical connections

3.1 Heating system electrical connections

BC-03-01-00-00-01-IAEN

Mains connection

- 230V, 50Hz, 13A fuse (surge protector recommended)

Standard specifications

- 1 Boiler control panel (BCE)
- 1 Boiler circuit board (230V AC)
- 1 Safety temperature limiter (STL)
- 1 Fault signal output (24V DC 200 mA – if freewheeling diode relay used)
- 1 Boiler sensor (KVT20 Ω)
- 1 Flue gas temperature sensor (thermocouple)
- 1 Stoker sensor (PT1000 Ω)
- 1 Oxygen sensor (12V DC)
- 1 Flue draught fan (230V AC)
- 1 Grate cleaner motor (230V AC)
- 1 TKS 1 (firebox and ash box door switch, 24V DC)
- 1 TKS fill level switch (firebox monitor)
- 1 Stoker drive motor G1 (230V AC)
- 1 Outfeed drive motor A1 (230 VAC)
- 1 Outfeed fan A2 (230V AC)
- 1 Fill level sensor (12V DC)
- 1 Ignition fan (230V AC)
- 1 Boiler enabling switch (emergency off)
- 1 KLP output (230V AC)

Optional equipment

- 4 Pump outputs (230V AC)
- 2 Mixer valve outputs (230V AC)
- 1 Outside temperature sensor input (KVT20 Ω)
- 1 DHW cylinder sensor input (KVT20 Ω)
- 2 Flow temperature sensor inputs (KVT20 Ω)

Resistances

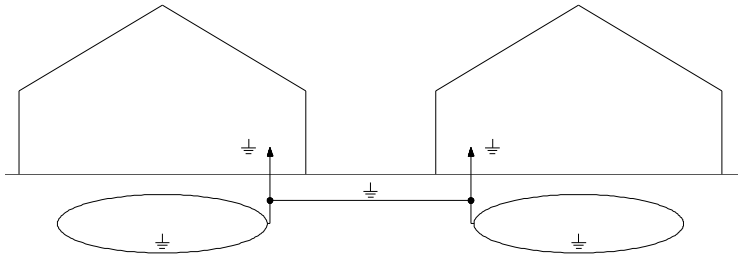
Temperature in °C	KVT20 in kΩ	Temperature in °C	PT1000 in kΩ
-16°C	1.434	0 °C	1.000
-8°C	1.537	10 °C	1.039
0 °C	1.644	30 °C	1.117
10 °C	1.783	40 °C	1.155
20 °C	1.928	50 °C	1.194
30 °C	2.078	60 °C	1.232
40 °C	2.234	70 °C	1.271
50 °C	2.395	80 °C	1.309
60 °C	2.563	100 °C	1.385
70 °C	2.735	125 °C	1.480

3.2 Wiring requirements

BS-03-02-00-00-01-IAEN

Surge protection

Where CAN bus cables run between different buildings, the earthing conductors of the buildings must be connected to each other for potential equalisation purposes. If the earthing conductors cannot be interconnected, a 10 mm rustless ring earth must be laid along with the CAN bus cable in the ground. The earthing conductors and ring earth must then be connected to one another.



Sensor

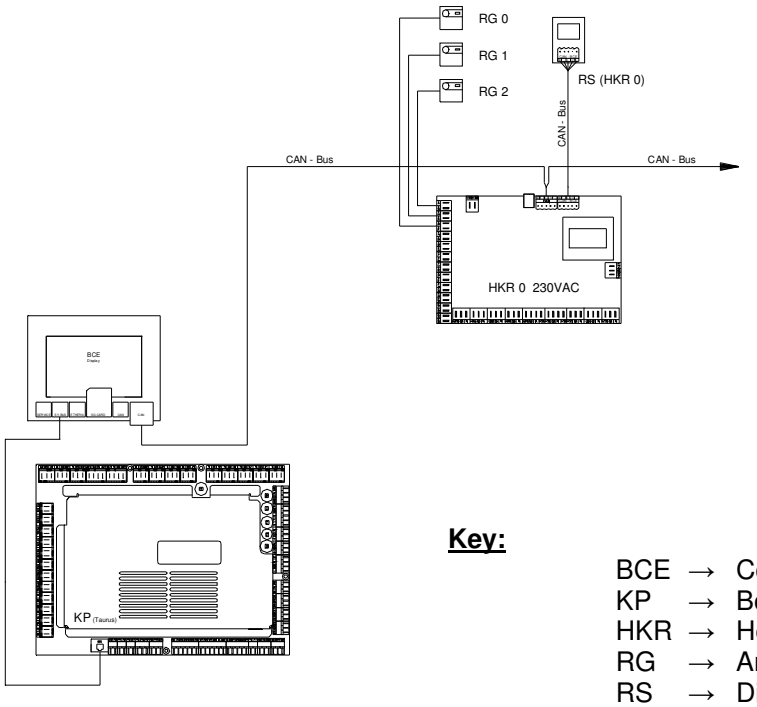
2 x 1 mm²

Analogue room stat RFF

2 x 1 mm²

CAN bus connecting cable

2 x 2 x 0.5 mm² twisted pair, shielded



More outside-temp. based controllers can be connected via CAN bus

Key:

BCE → Control panel
KP → Boiler PCB
HKR → Heating circuit controller
RG → Analogue room stat
RS → Digital room controller

Wiring CAN bus in line

Whenever possible, always wire the CAN bus "in line", i.e. from the display and control unit to heating circuit controller 0 then from there to heating circuit controller 1, and so on. If wired in a star pattern, the overall length of the CAN bus must not exceed 100 metres. Wire the CAN bus +/- and H/L connections with twisted-pair cable in each case.

3.3 Electrical connections

BS-03-03-00-00-01-IAEN

The electrical connections to the boiler system on site may only be made by an approved electrical installer observing all the applicable regulations. In addition, it is essential that electrical system components are protected against damage from heat radiation.

All boiler system internal wiring is wired up at the factory ready for use. The work required on site by the electrical installer consists only of connecting the mains power and wiring up and connecting the system components such as thermal store, CAN bus, heating circuit pumps, mixer valve motors, etc.

BS-03-03-00-01-01-IAEN

Mains power supply

230 V, 50 Hz, 13 A fuse

The mains power must be connected by means of the standard non-reversible power socket on the rear panel of the boiler. It must possible to isolate the system entirely from the mains without opening the switch panel cover, e.g. by means of an automatic circuit-breaker.

Correct polarity of the boiler's mains power connection must be ensured. The live (L) and neutral (N) phases must not be reversed as otherwise the short-circuit protection and safety system function cannot be guaranteed.

PH-03-03-00-02-01-IAEN

Opening switch panel

Before the switch panel is opened, the boiler mains lead must be unplugged from the power supply. The system must not be live.

- Undo switch panel securing screw.
- Lift up front right panel section slightly, unclip and draw forwards to remove.
- The circuit boards with the associated connectors and fuses (see electrical wiring diagram) are located underneath it in an easily accessible position.
- The appropriate cable ducts must be used when connecting electrical leads.

PH-03-03-00-03-01-IAEN

Outside-temperature based controller

The MKR outside-temperature based heating circuit controller set is offered as an option and activated on the boiler circuit board if required. The MK261 wall controller set, on the other hand, can only be fitted externally and connected to the system via the CAN bus. Operation and configuration is via the boiler control panel.

Set MKR

The heating circuit controller can be used to control a DHW cylinder, a pumped heating circuit (HC0) and two mixed heating circuits (HC1, HC2). If heating circuit 0 is not used, the "*supplementary*" function can be used to operate a second DHW cylinder (HWP) or an external burner (EXTERNAL).

Wall controller set MK261

The wall controller set MK261 must be connected to the power supply at terminal H35 and connected to the control panel via the CAN bus.

The wall controller set can be used to control a DHW cylinder, a pumped heating circuit, 2 mixed heating circuits, one "*supplementary function*" (WWP or EXTERNAL) and a "*district heating pipe*" function (TSP/CP/FP). If the "*supplementary*" and "*district heating*" functions are not used, heating circuit 0 can be operated as a 3rd mixed circuit.

Analogue room stat

The room stat should be connected to the relevant heating circuit controller input at terminals 1 and 2 (see electrical wiring diagram).

Digital room controller

The room controller must be connected to the control panel (BCE) or wall controller set MK261 via CAN bus.

3rd mixed heating circuit

Can only be activated on wall controller

Heating circuit 0 can only be used as a mixed heating circuit if the "*supplementary*" and "*district heating*" functions are not activated. Mixer valve 0 (MI 0) is connected to output terminals H25 and H26 and heating circuit pump 0 (HKP 0) to terminal H33 on the wall controller. The "*district heating pipe*" and "*supplementary*" functions are then not available.

2. DHW cylinder

Can be activated internally and/or on the wall controller.

On the MKR controller set and on the MK261 wall controller set, an additional DHW cylinder (HWP) can be activated using the "*supplementary*" function. The district heating function on the wall controller set remains available but the 3rd mixed heating circuit cannot be connected.

External burner request

Can be activated internally and/or on the wall controller.

On the MKR controller set and on the MK261 wall controller set, an external heating boiler (External) can be called for using the using the "supplementary" function. The load on the output must not exceed 230VAC and 2.0A. The district heating function on the wall controller set remains available but the 3rd mixed heating circuit cannot be connected.

Boiler cascade

Up to four heating boilers can be operated in a cascade system (sequential control system) and must be connected in-line via a CAN bus. **The CAN bus lead must be wired without connecting the + terminal.**

Pay special attention to the section "Wiring requirements, Wiring CAN bus in line".

BS-03-03-00-04-01-IAEN

Emergency off switch

According to prTRVB H 118, it must be possible to switch off the system using an emergency off switch fitted outside the boiler room near to the boiler room door. The burner must then shut down but the heating controller and all safety equipment must remain functional. Connected to the boiler enabling switch, terminals 22/23 on the boiler circuit board (see electrical wiring diagram).

BS-03-03-00-05-01-IAEN

Surge protection

We recommend the installation of a power surge protector in the building's consumer unit.

Pay special attention to the section "Wiring requirements, Surge protection".

Earthing

The entire system is to be joined to the earth circuit conductor via the connected piping system according to the regulations.

When connecting the earth circuit conductor pay particular attention to keeping the connecting runs as short as possible.

Emergency power supply

Only use regulated generators.

4 Final checks/Commissioning

BS-04-00-00-00-01-IAEN

Final checks

- After completing installation of the system, check again that all joints and pipes are properly tightened and not leaking.
- Check that all covers are fitted and secured.
- Check that the fitting of all connections (water, flue, electrical, ...) has been done correctly.
- Check that all required safety signs and instructions are attached and hand over all documentation (operating and installation instructions) for the system.
- Check that all electrical connections have been properly wired before connecting the system to the power supply.
- Clean the system and clear up the installation site.
- Always leave the boiler room clean.

Initial commissioning

Commissioning must only be carried out by GUNTAMATIC or a qualified specialist. The precondition is that the flue technician, heating installer and electrician have cleared the system for operation. The authorised GUNTAMATIC specialist will carry out the following work during commissioning:

- Check the entire system
- Check the electrical functions
- Adjust the programmer to the system
- Commission the system
- Explain to the user how the system functions and how to operate and clean it
- Record the details of the customer and the system and complete the commissioning log

Important → Any deficiencies identified must be recorded in writing and rectified within the following 4 weeks in order to maintain guarantee entitlement.

The fully completed commissioning checklist must be sent to GUNTAMATIC immediately as otherwise the guarantee will be void.

Important → These installation instructions should not be destroyed after commissioning but kept permanently with the system together with the operating instructions.

5 Standards/Regulations

BS-05-00-00-00-01-IAEN

The boiler is designed as a Class 3 appliance as defined by the draft standard ÖNORM EN 303-5 (CEN/TC7/WG 1 – Doc. N 36-D) of 15/12/1996 and the agreement of the [Austrian] Federal States according to Art. 15a BVG, in accordance with the Austrian fire safety regulations, safety systems, CE and on safety measures for small combustion heating systems and the combustion heating system approval regulations (LGB.33/1992) of the Austrian Federal State of Steiermark. The original design approval certificates (BLT Wieselburg, IBS Linz) are available for inspection at the manufacturer's offices. When connecting the boiler, the following general, standard and safety regulations must be followed in addition to the local fire safety and building control requirements:

- ÖNORM EN303-5 Boilers for solid fuels, manually and automatically stoked, with outputs up to 300 kW; terms, requirements, testing and identification;
- ÖNORM H 5195-1 Assessment and suitability of the heating water (minimum requirements for the heating water);
- ÖNORM M 7510 Guidelines for the inspection of central heating systems;
- ÖNORM M 7550 Central heating boilers up to 100°C – Terms, requirements, tests, standard identification;
- ÖNORM B 8130 Safety systems;
- ÖNORM B 8131 Sealed water-circulation heating systems, safety requirements;
- ÖNORM B 8133 Safety requirements, domestic hot water systems;
- pr TRVB H 118 Technical Directive on Preventative Fire Safety
- DIN 4751-1 / Safety systems for heating systems with flow temperatures up to 110°C (120°C in course of preparation);
- DIN 4751-2 / Water-circulation heating systems – sealed heating systems with thermostatic safety systems and flow temperatures up to 120°C – safety systems;
- DIN 4751-4 / Safety systems for domestic hot water systems with flow temperatures up to 120°C; sealed water-circulation heating systems with static heads over 15 m or rated heat outputs over 350 kW;
- DIN 1988 Mains water piping systems on building plots, technical regulations for construction and operation;
- DGVO §7(2) Technical requirements for systems for producing domestic hot water with a temperature not higher than 110°C which are stoked by hand with solid fuel;
- HEATING OUTPUT: The heating output is to be selected (set) by the engineer in accordance with the local heating system regulations so that the rated heat output does not exceed the heat requirement determined according to DIN 4701 or ÖNORM M7500;
- Swiss Clean Air Regulations (LRV)
- Swiss Regulations on Small Combustion Heating Systems
- VKF Fire Safety Directive for Heating Systems (Switzerland)
- SIA 384 (Switzerland)

6 Plumbing diagrams

BC-06-00-00-00-01-IAEN

Diagrams for boiler outputs up to 50 kW

Diagram no.: **BC-01-1** BC with high/low temperature system (2 mixed circuits)
outside-temperature based controller, ECO DHW cylinder

Diagram no.: **BC-01-2** BC with high/low temperature system (3 mixed circuits)
outside-temperature based controller (wall controller), ECO DHW cylinder

Diagram no.: **BC-02-2** BC with HT/LT system, PSF thermal store (inc. WSU)
outside-temperature based controller, PSF thermal store, connected solar panel system

Diagram no.: **BC-03-1** BC with HT/LT system, PS thermal store
outside-temperature based controller, ECO DHW cylinder, PS thermal store

Diagram no.: **BC-04-2** BC combined with wood-burning boiler, PSF thermal store
outside-temperature based controller, wood-burning boiler, PSF thermal store

Diagram no.: **BC-05-1** BC with HT/LT system, district heating pipe, no thermal store
outside-temperature based controller, ECO DHW cylinder

Diagram no.: **BC-06-1** BC with HT/LT system, district heating pipe, PS thermal store
outside-temperature based controller, ECO DHW cylinder, PS thermal store

Diagrams for boiler outputs upwards of 50 kW

Diagram no.: **BC-07-2** BC with high/low temperature system, PS thermal store
outside-temperature based controller, ECO DHW cylinder, PS thermal store

Diagram no.: **BC-08-2** BC with HT/LT system, PSF thermal store (inc. WSU)
outside-temperature based controller, PSF thermal store, connected solar panel system

Diagram no.: **BC-10-1** BC with high/low temperature system
outside-temperature based controller, ECO DHW cylinder

Diagram no.: **BC-11-2** BC with HT/LT system, district heating pipe, no thermal store
outside-temperature based controller, ECO DHW cylinder

Diagram no.: **BC-12-2** BC with HT/LT system, district heating pipe, PS thermal store
outside-temperature based controller, ECO DHW cylinder, PS thermal store

Diagrams for systems supplying multiple properties (max. 3 properties)

Diagram no.: **PH-13-2** Properties supplied via district heating pipe function CP (charging pump)
per property – 1 outside-temp. based controller, 1 ECO DHW cylinder 1 PS thermal store

Diagram no.: **PH-14-2** Properties supplied via district heating pipe function FP (feeder pump)
per property – 1 outside-temp. based controller, 1 ECO DHW cylinder

Diagram no.: **PH-15-2** Properties supplied via district heating pipe function TSP (thermal store pump)
per property – 1 outside-temp. based controller, 1 ECO DHW cylinder 1 PS thermal store

Diagram for sequential boiler control system (cascade system)

Diagram no.: **PH-16-2** Sequential boiler control system (boiler cascade system)
for max. 4 boilers

Diagrams for boiler outputs up to 50 kW
BIOCOM with high/low temperature system (2 mixed heating circuits)
outside-temperature based controller, ECO DHW cylinder

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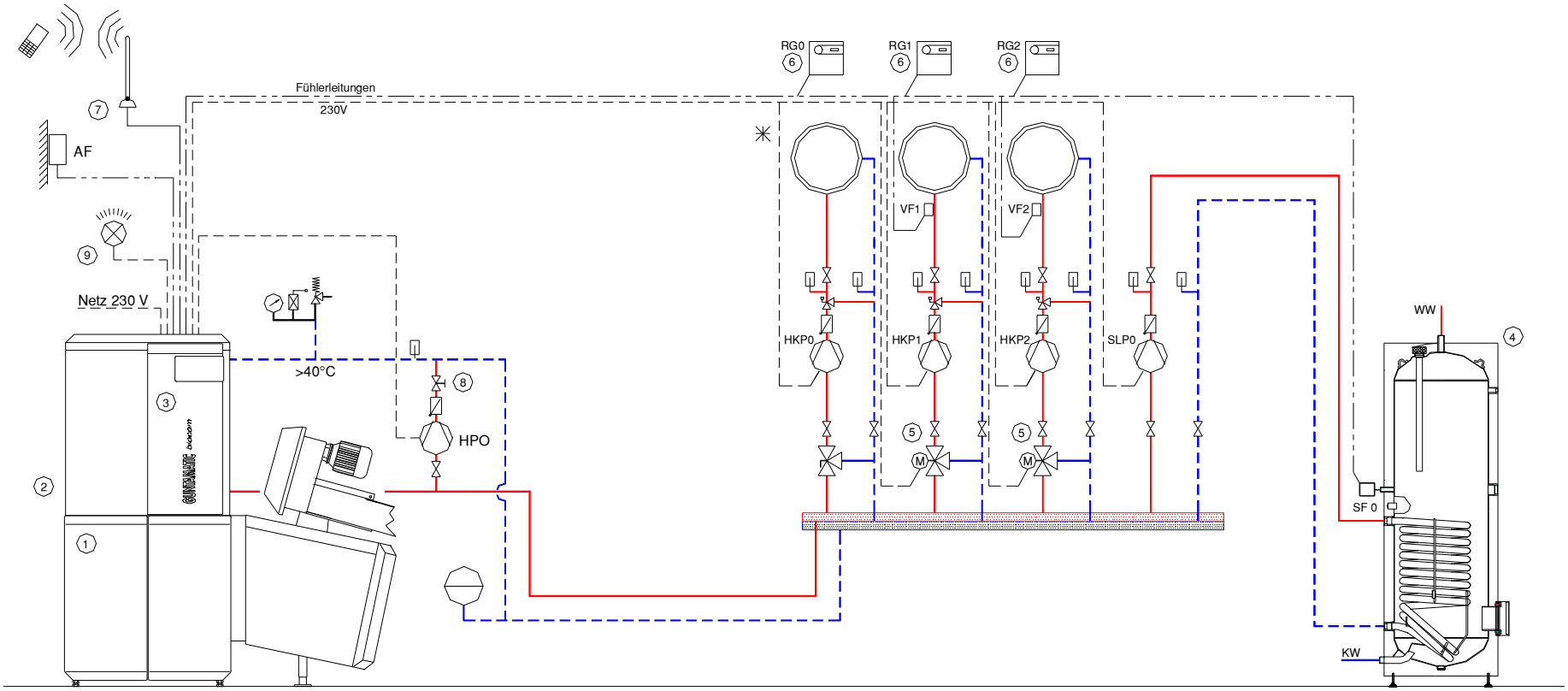
Diagram no. BC-01-1

Electrical connections as per operating and installation instructions

- Heating circuit 0 can be used with a fixed-setting controller for a low-temperature heating system or Heating circuit 0 can be room-temperature controlled using an RFF25 room stat for a radiator heating system

GUNTAMATIC components

1.	BIOCOM boiler	
2.	Flue draught regulator RE (size to suit flue diameter)	As price list
3.	Outside temp. based controller set MKR	Art. no.: S30-031
4.	DHW cylinder ECO305	Art. no.: 048-500
5.	Mixer valve positioner motor SM70	Art. no.: S50-501
6.	Room stat RFF25	Art. no.: S70-006
7.	GSM module	Art. no.: S15-002
8.	Branch control valve	Not supplied
9.	Fault indicator lamp **Important: follow wiring diagram!**	Not supplied



Diagrams for boiler outputs up to 50 kW
BIOCOM with high/low temperature system (3 mixed heating circuits)
outside-temperature based controller (wall controller), ECO DHW cylinder

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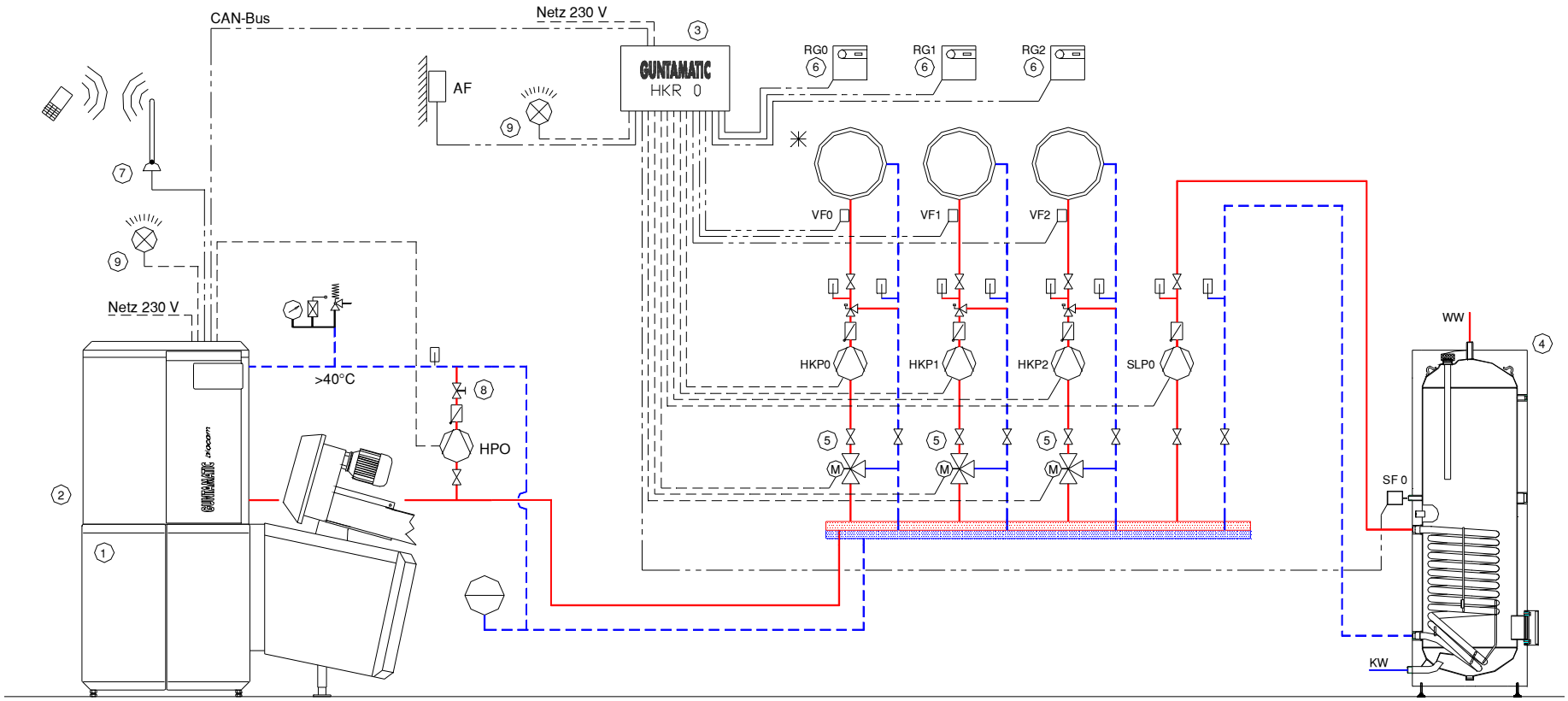
Diagram no. BC-01-2

Electrical connections as per operating and installation instructions

- With wall controller set MK261, the supplementary output (terminal H25) and the district heating pipe output (terminal H26) can be used to control heating circuit 0 using a mixer valve motor. The heating circuit pump is connected to output HKP 0 (terminal H33) and flow temperature sensor 0 to terminal H21/H22. With this configuration option, the district heating pipe and supplementary functions are not available.

GUNTAMATIC components

1.	BIOCOM boiler	
2.	Flue draught regulator RE (size to suit flue diameter)	As price list
3.	Outside temp. based wall controller set MK261	Art. no.: S30-030
4.	DHW cylinder ECO305	Art. no.: 048-500
5.	Mixer valve positioner motor SM70	Art. no.: S50-501
6.	Room stat RFF25	Art. no.: S70-006
7.	GSM module	Art. no.: S15-002
8.	Branch control valve	Not supplied
9.	Fault indicator lamp **Important: follow wiring diagram!**	Not supplied
10.	Flow temp. sensor VF20 (VF0 for HK 0)	Art. no.: S70-002



Diagrams for boiler outputs up to 50 kW
BIOCOM with high/low temperature system, PSF thermal store (inc. water supply unit)
outside-temperature based controller, thermal store PSF, connected solar panel system

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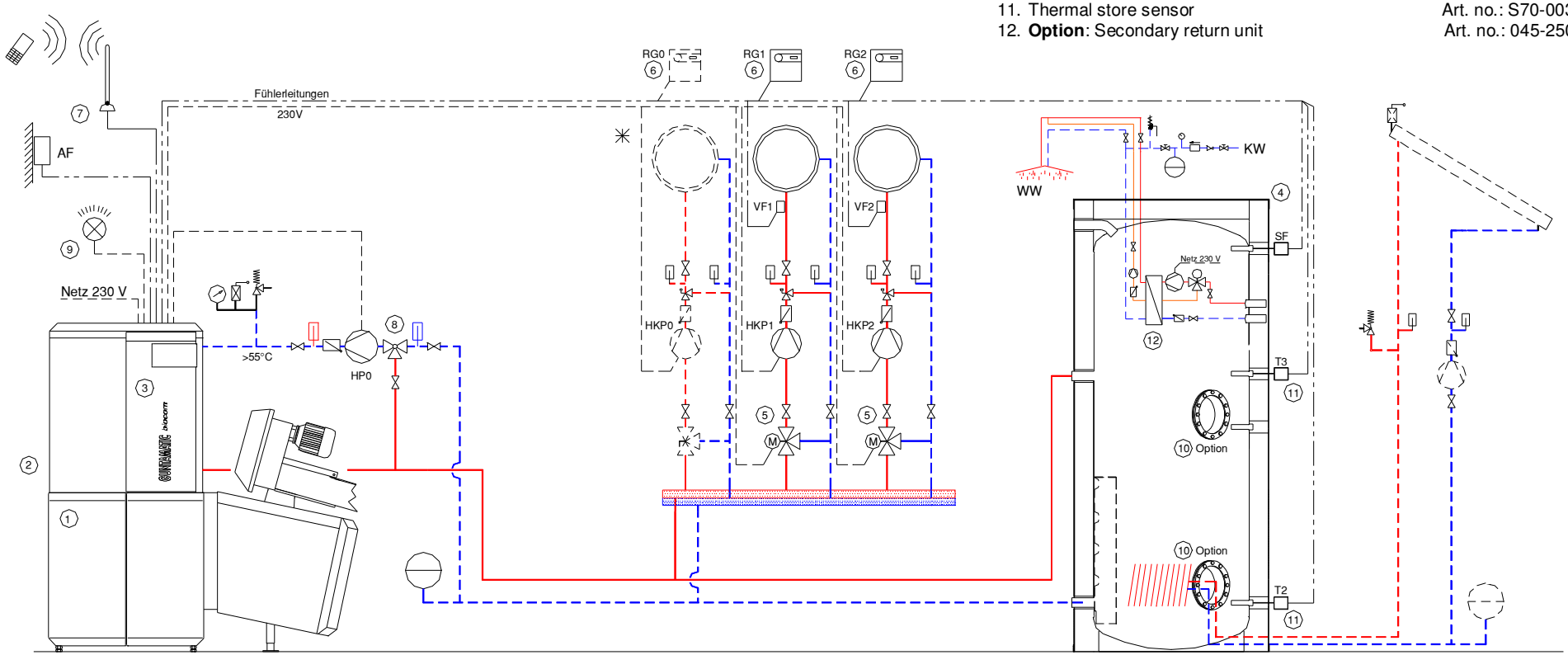
Diagram no. BC-02-2

Electrical connections as per operating and installation instructions

- Heating circuit 0 can be used with a fixed-setting controller for a low-temperature heating system or Heating circuit 0 can be room-temperature controlled using an RFF25 room stat for a radiator heating system

GUNTAMATIC components

1.	BIOCOM boiler	
2.	Flue draught regulator RE (size to suit flue diameter)	As price list
3.	Outside temp. based controller set MKR	Art. no.: S30-031
4.	Thermal store PSF	As price list
5.	Mixer valve positioner motor SM70	Art. no.: S50-501
6.	Room stat RFF25	Art. no.: S70-006
7.	GSM module	Art. no.: S15-002
8.	Return boost set RA60	Art. no.: H39-001
	Alternatively: RA60 EnergieA	Art. no.: H39-003
9.	Fault indicator lamp **Important: follow wiring diagram!**	Not supplied
10.	**Option**: 12-hole flange and ridged pipe heat exchanger	
11.	Thermal store sensor	Art. no.: S70-003
12.	**Option**: Secondary return unit	Art. no.: 045-250



Diagrams for boiler outputs up to 50 kW
BIOCOM with high/low temperature system, PS thermal store
outside-temperature based controller, ECO DHW cylinder, PS thermal store

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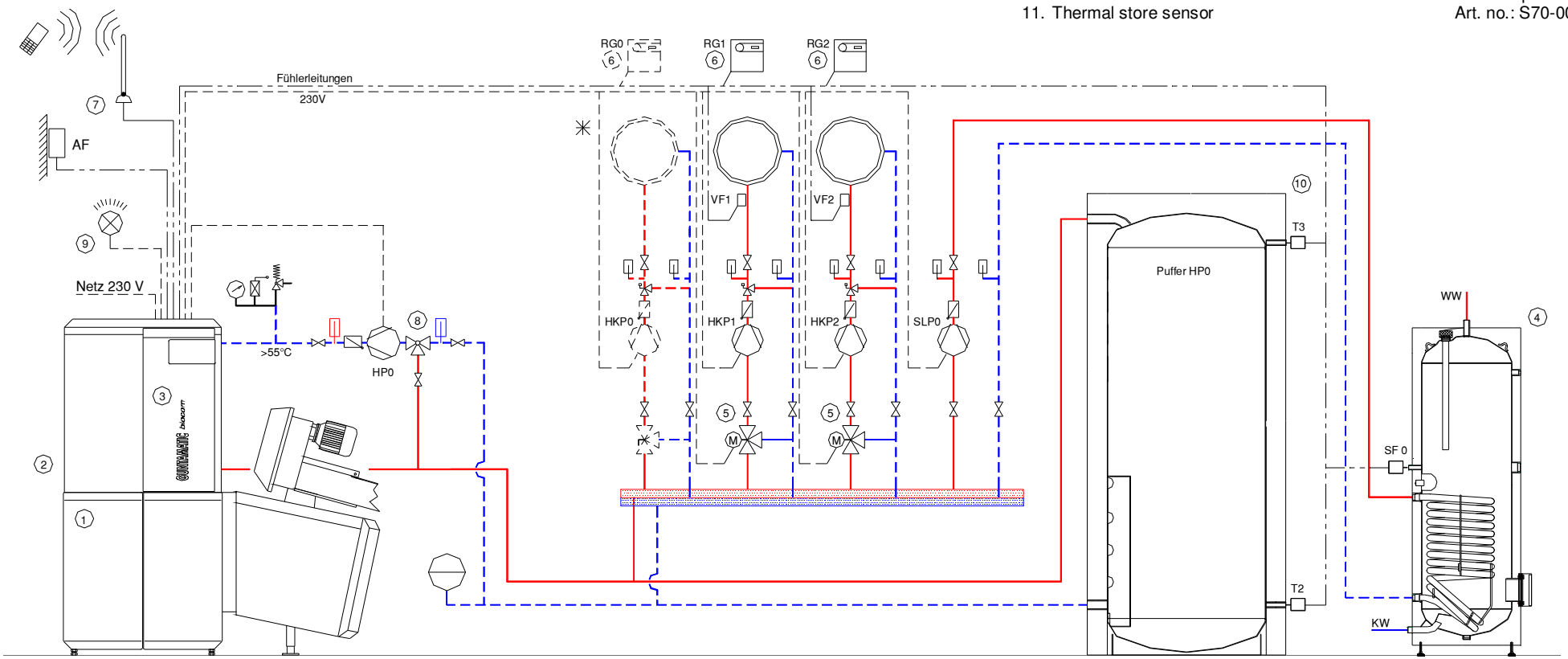
Diagram no. BC-03-1

Electrical connections as per operating and installation instructions

- Heating circuit 0 can be used with a fixed-setting controller for a low-temperature heating system or Heating circuit 0 can be room-temperature controlled using an RFF25 room stat for a radiator heating system

GUNTAMATIC components

1.	BIOCOM boiler	
2.	Flue draught regulator RE (size to suit flue diameter)	As price list
3.	Outside temp. based controller set MKR	Art. no.: S30-031
4.	DHW cylinder ECO305	Art. no.: 048-500
5.	Mixer valve positioner motor SM70	Art. no.: S50-501
6.	Room stat RFF25	Art. no.: S70-006
7.	GSM module	Art. no.: S15-002
8.	Return boost set RA60	Art. no.: H39-001
	Alternatively: RA60 EnergieA	Art. no.: H39-003
9.	Fault indicator lamp **Important: follow wiring diagram!**	Not supplied
10.	Thermal store PSB	As price list
11.	Thermal store sensor	Art. no.: S70-003



Diagrams for boiler outputs up to 50 kW
BIOCOM combined with wood-burning boiler, PSF thermal store (inc. water supply unit)
outside-temperature based controller, wood-burning boiler, thermal store PSF

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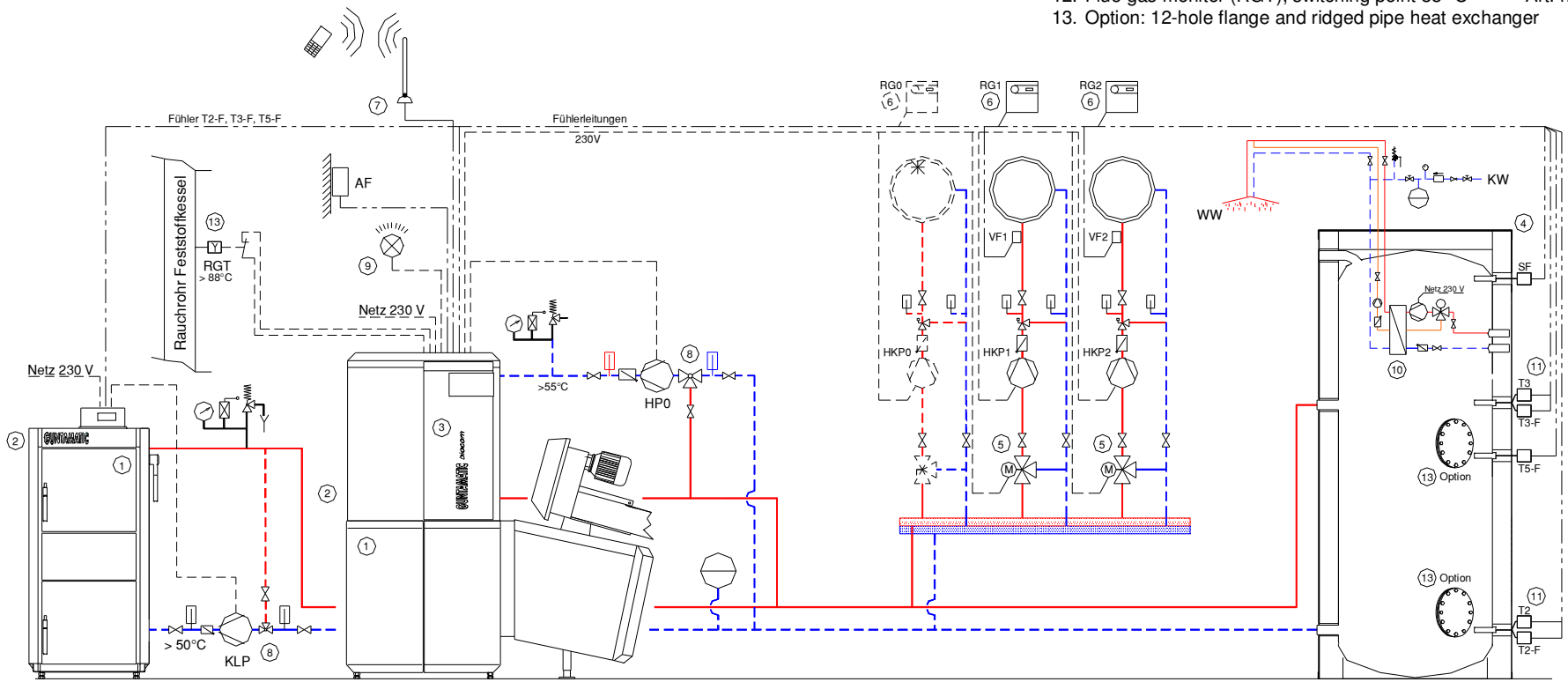
Diagram no. BC-04-2

Electrical connections as per operating and installation instructions

- Heating circuit 0 can be used with a fixed-setting controller for a low-temperature heating system or Heating circuit 0 can be room-temperature controlled using an RFF25 room stat for a radiator heating system.
- Flue gas monitor (RGT) connected to terminals 22/23 (boiler enabling switch on boiler circuit board)

GUNTAMATIC components

1.	BIOCOM boiler and solid fuel boiler	
2.	Flue draught regulator RE (size to suit flue diameter)	As price list
3.	Outside temp. based controller set MKR	Art. no.: S30-031
4.	Thermal store PSF	As price list
5.	Mixer valve positioner motor SM70	Art. no.: S50-501
6.	Room stat RFF25	Art. no.: S70-006
7.	GSM module	Art. no.: S15-002
8.	Return boost set RA60	Art. no.: H39-001
	Alternatively: RA60 EnergieA	Art. no.: H39-003
9.	Fault indicator lamp **Important: follow wiring diagram!**	Not supplied
10.	**Option**: Secondary return unit	Art. no.: 045-250
11.	Thermal store sensor	Art. no.: S70-003
12.	Flue gas monitor (RGT), switching point 88 °C	Art. no.: H00-801
13.	Option: 12-hole flange and ridged pipe heat exchanger	



Diagrams for boiler outputs up to 50 kW
BIOCOM with high/low temperature system, district heating pipe, no thermal store
outside-temperature based controller, ECO DHW cylinder

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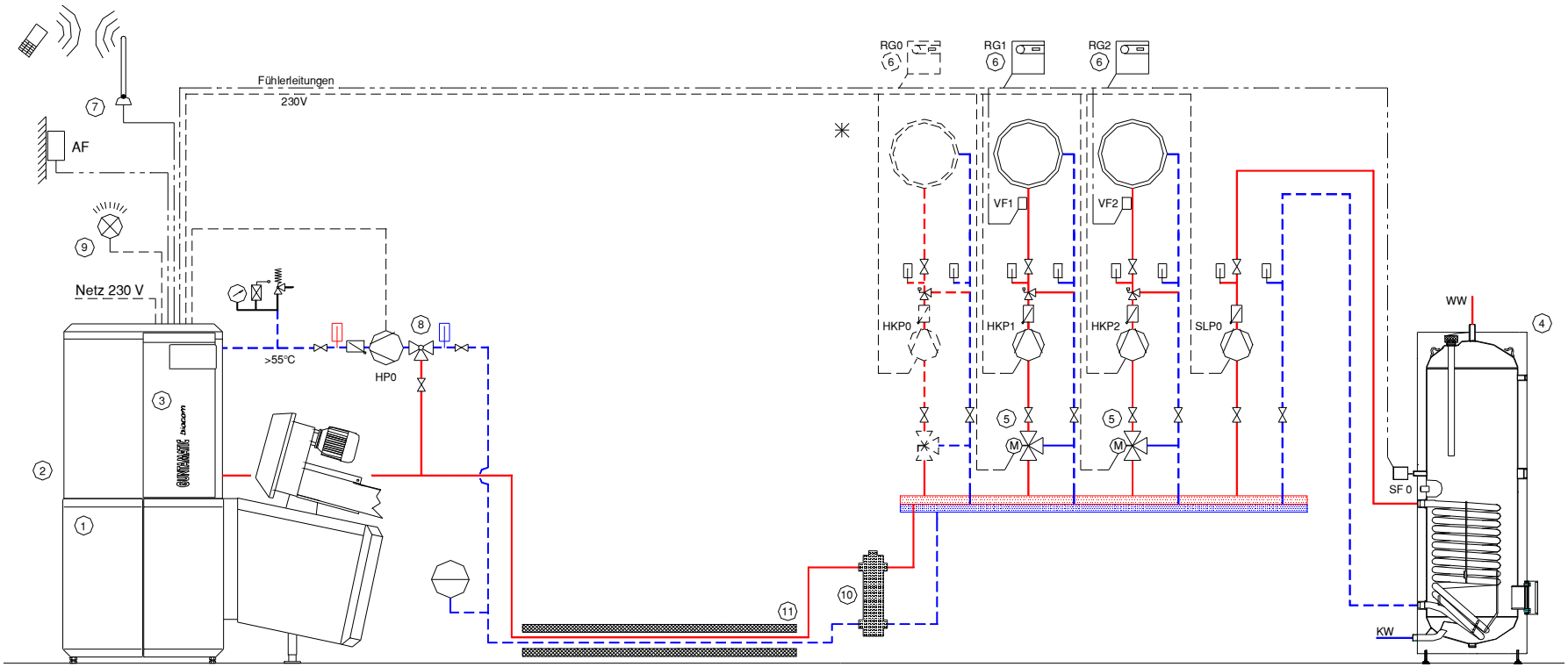
Diagram no. BC-05-1

Electrical connections as per operating and installation instructions

- Heating circuit 0 can be used with a fixed-setting controller for a low-temperature heating system or Heating circuit 0 can be room-temperature controlled using an RFF25 room stat for a radiator heating system

GUNTAMATIC components

1.	BIOCOM boiler	
2.	Flue draught regulator RE (size to suit flue diameter)	As price list
3.	Outside temp. based controller set MKR	Art. no.: S30-031
4.	DHW cylinder ECO305	Art. no.: 048-500
5.	Mixer valve positioner motor SM70	Art. no.: S50-501
6.	Room stat RFF25	Art. no.: S70-006
7.	GSM module	Art. no.: S15-002
8.	Return boost set RA60	Art. no.: H39-001
	Alternatively: RA60 EnergieA	Art. no.: H39-003
9.	Fault indicator lamp **Important: follow wiring diagram!**	Not supplied
10.	Flow equaliser	Not supplied
11.	District heating pipe	Not supplied



Diagrams for boiler outputs up to 50 kW
BIOCOM with high/low temperature system, district heating pipe, PS thermal store
outside-temperature based controller, ECO DHW cylinder, PS thermal store

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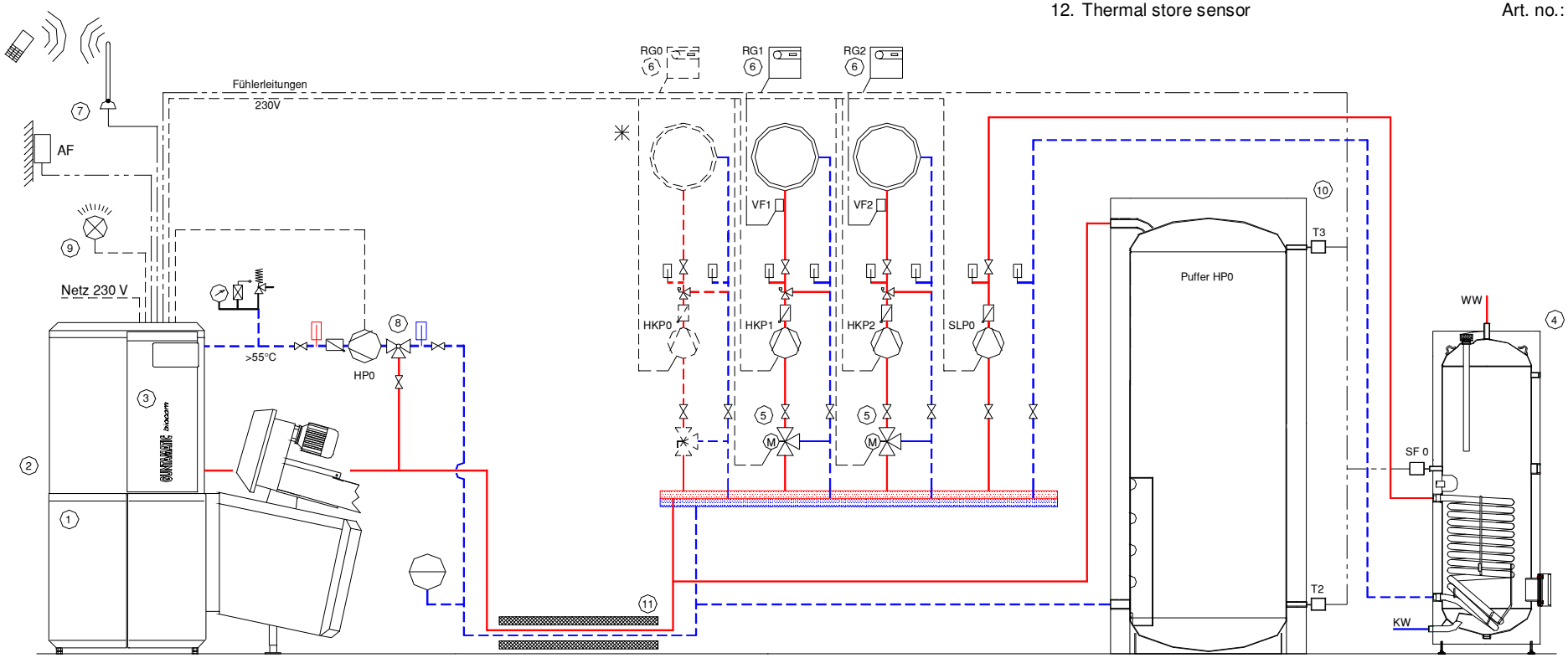
Diagram no. BC-06-1

Electrical connections as per operating and installation instructions

- Heating circuit 0 can be used with a fixed-setting controller for a low-temperature heating system or Heating circuit 0 can be room-temperature controlled using an RFF25 room stat for a radiator heating system

GUNTAMATIC components

1.	BIOCOM boiler	
2.	Flue draught regulator RE (size to suit flue diameter)	As price list
3.	Outside temp. based controller set MKR	Art. no.: S30-031
4.	DHW cylinder ECO305	Art. no.: 048-500
5.	Mixer valve positioner motor SM70	Art. no.: S50-501
6.	Room stat RFF25	Art. no.: S70-006
7.	GSM module	Art. no.: S15-002
8.	Return boost set RA60	Art. no.: H39-001
	Alternatively: RA60 EnergieA	Art. no.: H39-003
9.	Fault indicator lamp **Important: follow wiring diagram!**	Not supplied
10.	Thermal store PSB	As price list
11.	District heating pipe	Not supplied
12.	Thermal store sensor	Art. no.: S70-003



Diagrams for boiler outputs upwards of 50 kW
BIOCOM with high/low temperature system, PS thermal store
outside-temperature based controller, ECO DHW cylinder, PS thermal store

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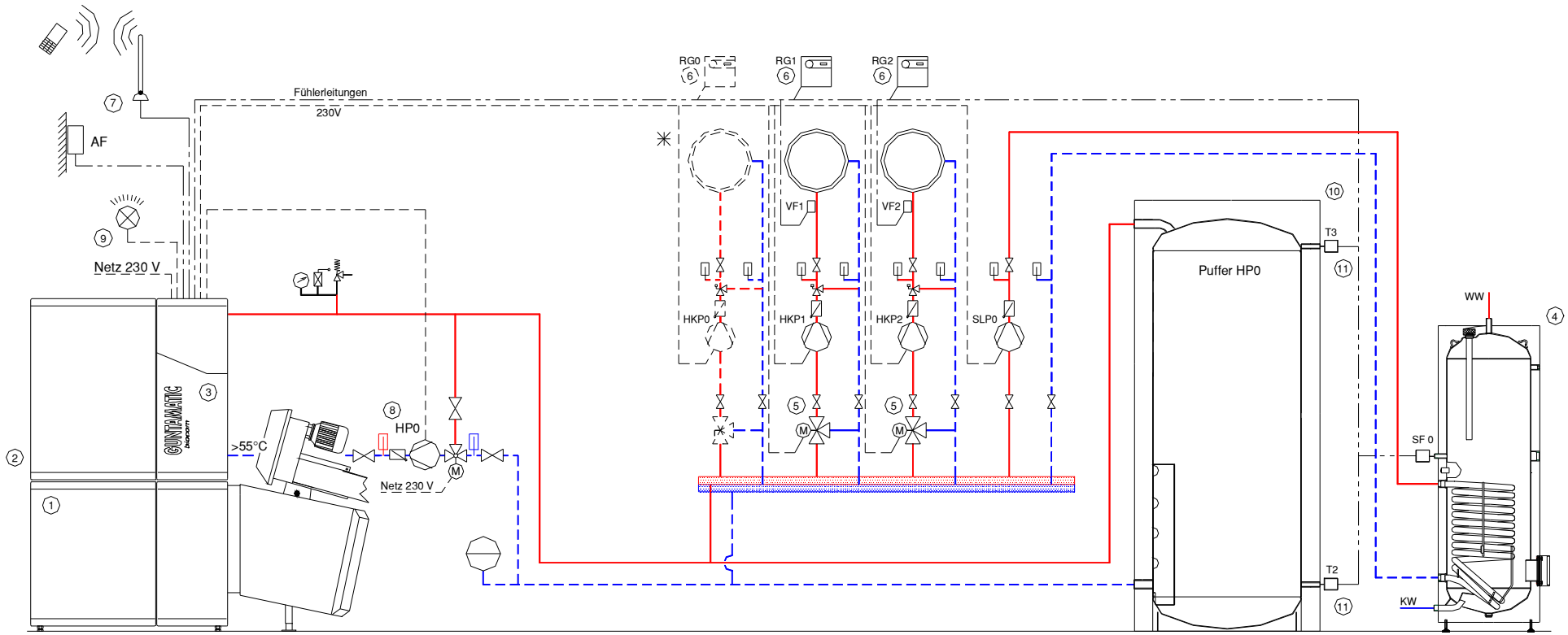
Diagram no. BC-07-2

Electrical connections as per operating and installation instructions

- Heating circuit 0 can be used with a fixed-setting controller for a low-temperature heating system or Heating circuit 0 can be room-temperature controlled using an RFF25 room stat for a radiator heating system

GUNTAMATIC components

1.	BIOCOM boiler	
2.	Flue draught regulator RE (size to suit flue diameter)	As price list
3.	Outside temp. based controller set MKR	Art. no.: S30-031
4.	DHW cylinder ECO305	Art. no.: 048-500
5.	Mixer valve positioner motor SM70	Art. no.: S50-501
6.	Room stat RFF25	Art. no.: S70-006
7.	GSM module	Art. no.: S15-002
8.	Return boost set RA100 EnergieA	Art. no.: H39-010
9.	Fault indicator lamp **Important: follow wiring diagram!**	Not supplied
10.	Thermal store PSB	As price list
11.	Thermal store sensor	Art. no.: S70-003



Diagrams for boiler outputs upwards of 50 kW
BIOCOM with high/low temperature system, PSF thermal store (inc. water supply unit)
outside-temperature based controller, thermal store PSF, connected solar panel system

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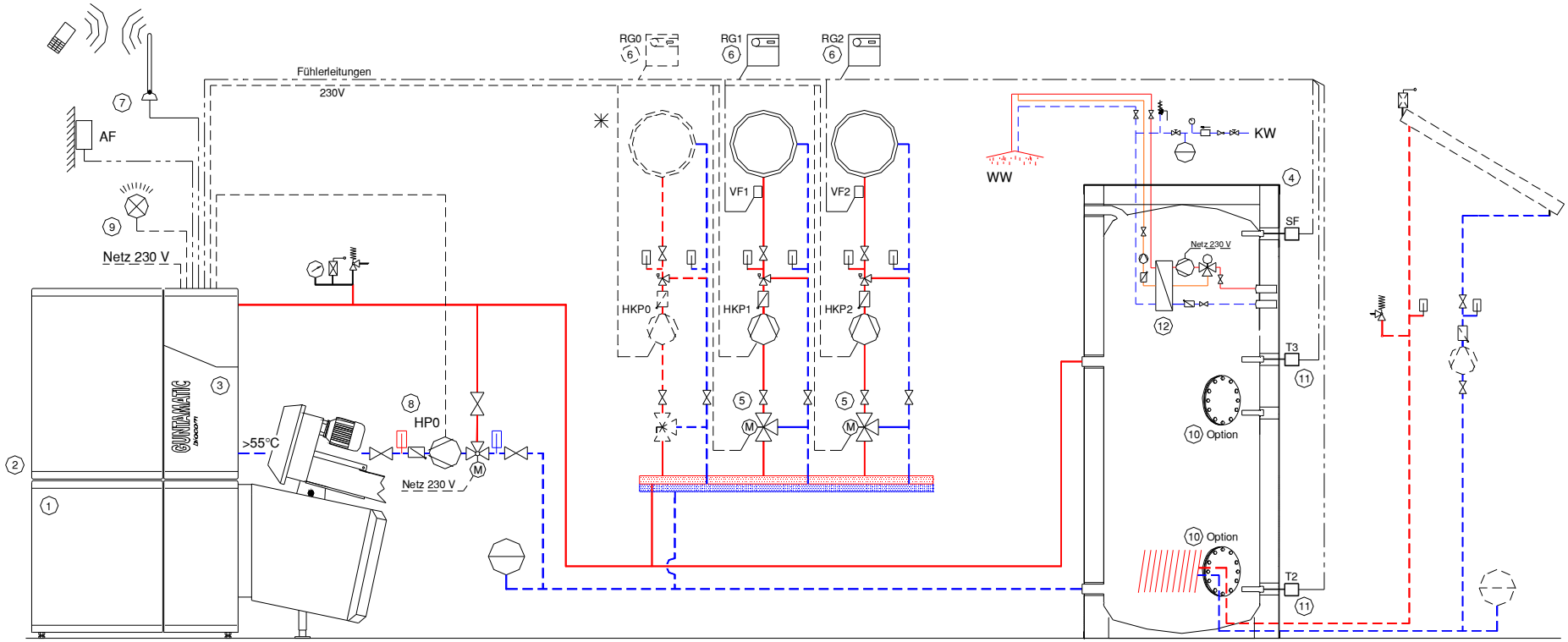
Diagram no. BC-08-2

Electrical connections as per operating and installation instructions

- Heating circuit 0 can be used with a fixed-setting controller for a low-temperature heating system or Heating circuit 0 can be room-temperature controlled using an RFF25 room stat for a radiator heating system

GUNTAMATIC components

1.	BIOCOM boiler	
2.	Flue draught regulator RE (size to suit flue diameter)	As price list
3.	Outside temp. based controller set MKR	Art. no.: S30-031
4.	Thermal store PSF	As price list
5.	Mixer valve positioner motor SM70	Art. no.: S50-501
6.	Room stat RFF25	Art. no.: S70-006
7.	GSM module	Art. no.: S15-002
8.	Return boost set RA100 EnergieA	Art. no.: H39-010
9.	Fault indicator lamp **Important: follow wiring diagram!**	Not supplied
10.	**Option:** 12-hole flange and ridged pipe heat exchanger	
11.	Thermal store sensor	Art. no.: S70-003
12.	**Option**: Secondary return unit	Art. no.: 045-250



Diagrams for boiler outputs upwards of 50 kW
BIOCOM with high/low temperature system
outside-temperature based controller, ECO DHW cylinder

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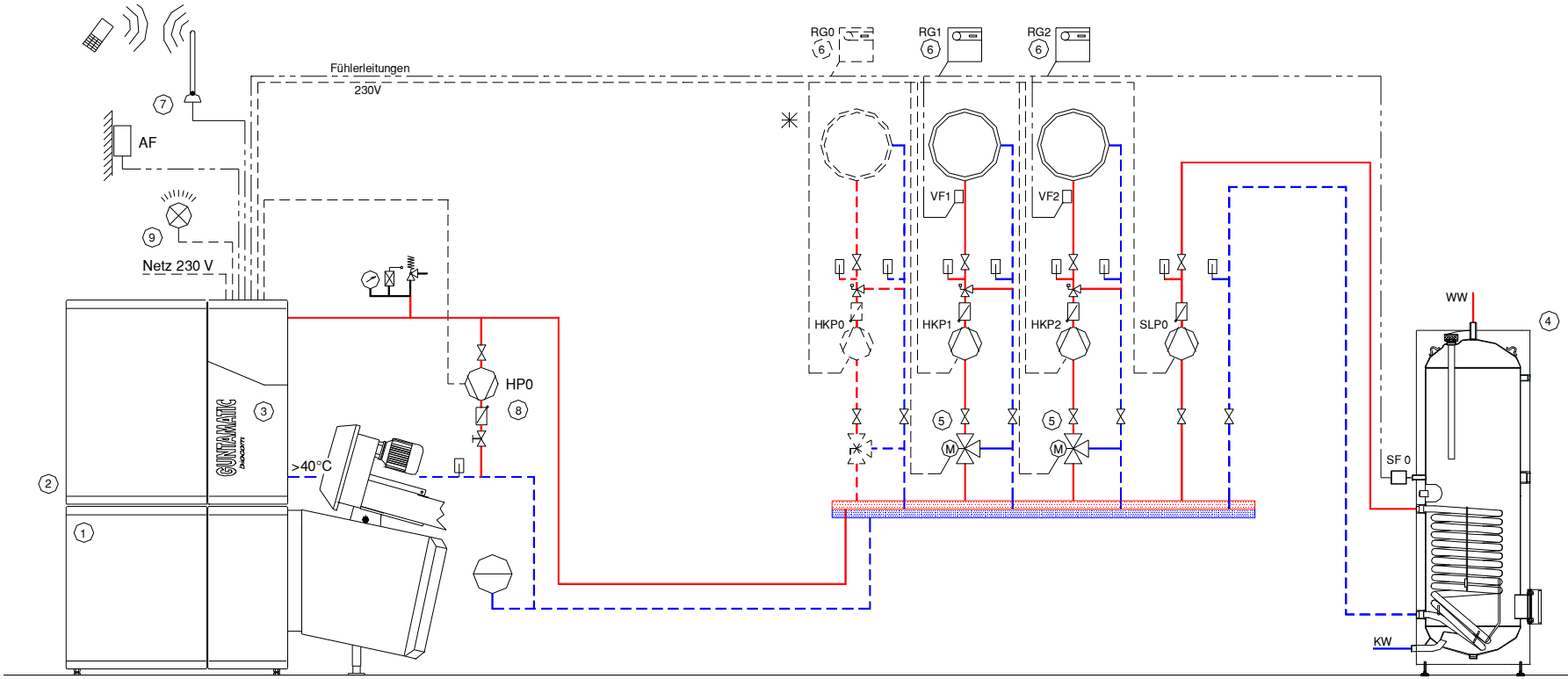
Diagram no. BC-10-1

Electrical connections as per operating and installation instructions

- Heating circuit 0 can be used with a fixed-setting controller for a low-temperature heating system or Heating circuit 0 can be room-temperature controlled using an RFF25 room stat for a radiator heating system

GUNTAMATIC components

1.	BIOCOM boiler	
2.	Flue draught regulator RE (size to suit flue diameter)	As price list
3.	Outside temp. based controller set MKR	Art. no.: S30-031
4.	DHW cylinder ECO305	Art. no.: 048-500
5.	Mixer valve positioner motor SM70	Art. no.: S50-501
6.	Room stat RFF25	Art. no.: S70-006
7.	GSM module	Art. no.: S15-002
8.	**Recommended pump** Wilo EAS/6-3 P	Art. no.: H39-101
9.	Fault indicator lamp **Important: follow wiring diagram!**	Not supplied



Diagrams for boiler outputs upwards of 50 kW
BIOCOM with high/low temperature system, district heating pipe, no thermal store
outside-temperature based controller, ECO DHW cylinder

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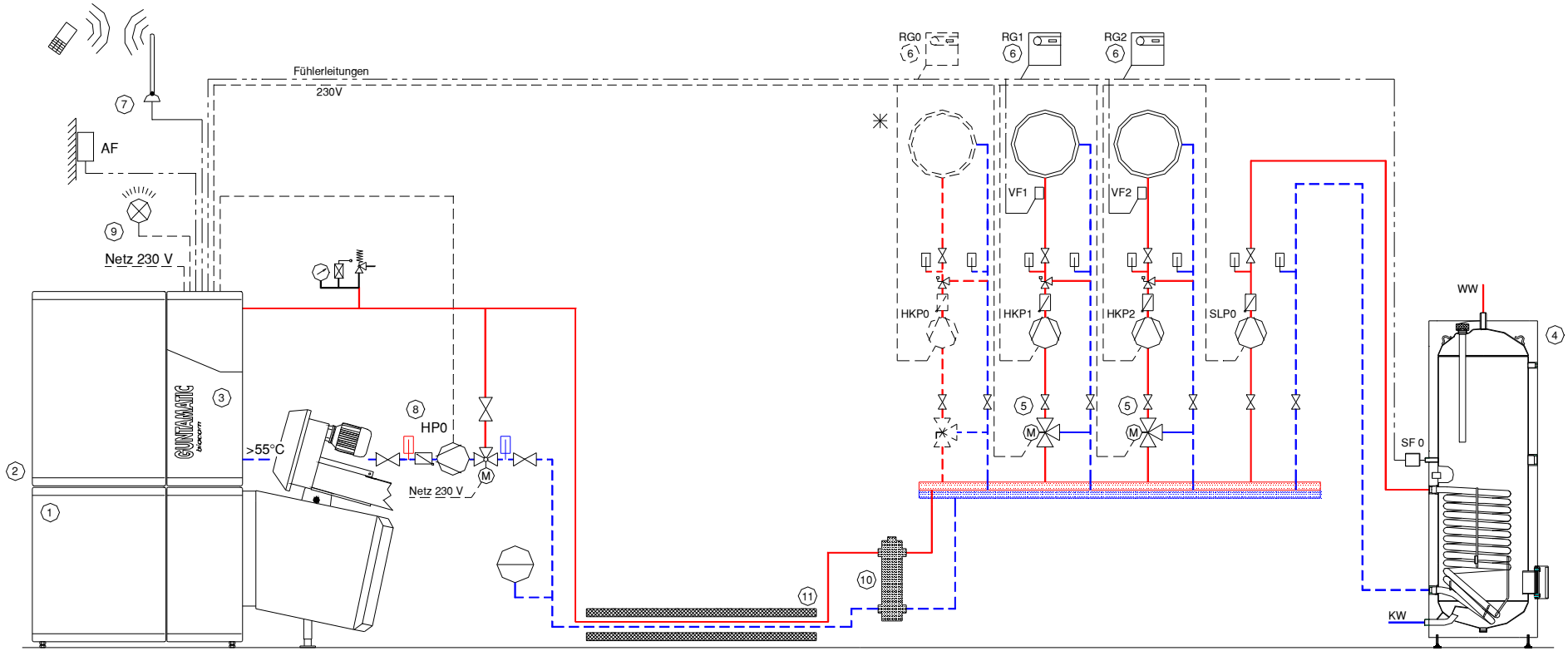
Diagram no. BC-11-2

Electrical connections as per operating and installation instructions

- Heating circuit 0 can be used with a fixed-setting controller for a low-temperature heating system or Heating circuit 0 can be room-temperature controlled using an RFF25 room stat for a radiator heating system

GUNTAMATIC components

1.	BIOCOM boiler	
2.	Flue draught regulator RE (size to suit flue diameter)	As price list
3.	Outside temp. based controller set MKR	Art. no.: S30-031
4.	DHW cylinder ECO305	Art. no.: 048-500
5.	Mixer valve positioner motor SM70	Art. no.: S50-501
6.	Room stat RFF25	Art. no.: S70-006
7.	GSM module	Art. no.: S15-002
8.	Return boost set RA100 EnergieA	Art. no.: H39-010
9.	Fault indicator lamp **Important: follow wiring diagram!**	Not supplied
10.	Flow equaliser	Not supplied
11.	District heating pipe	Not supplied



Diagrams for boiler outputs upwards of 50 kW
BIOCOM with high/low temperature system, district heating pipe, PS thermal store
outside-temperature based controller, ECO DHW cylinder, PS thermal store

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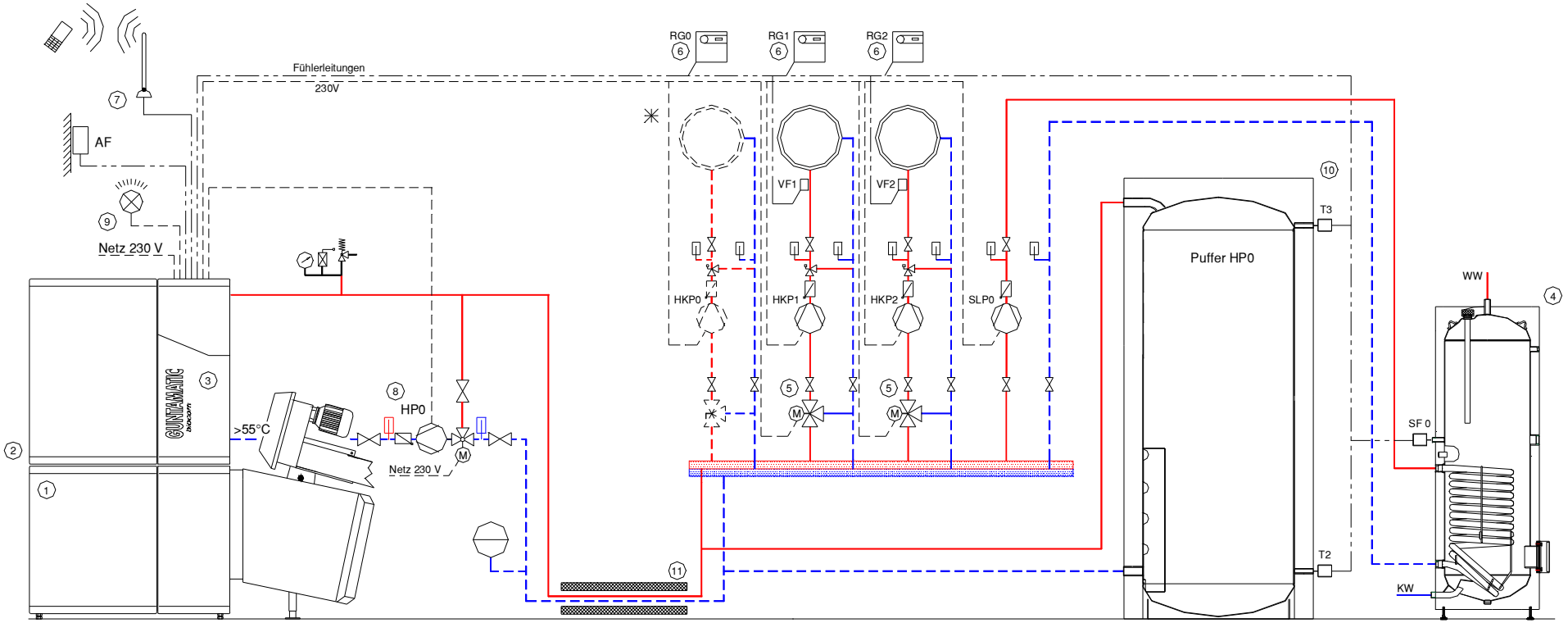
Diagram no. BC-12-2

Electrical connections as per operating and installation instructions

- Heating circuit 0 can be used with a fixed-setting controller for a low-temperature heating system or Heating circuit 0 can be room-temperature controlled using an RFF25 room stat for a radiator heating system

GUNTAMATIC components

1.	BIOCOM boiler	
2.	Flue draught regulator RE (size to suit flue diameter)	As price list
3.	Outside temp. based controller set MKR	Art. no.: S30-031
4.	DHW cylinder ECO 305	Art. no.: 048-500
5.	Mixer valve positioner motor SM70	Art. no.: S50-501
6.	Room stat RFF25	Art. no.: S70-006
7.	GSM module	Art. no.: S15-002
8.	Return boost set RA100 EnergieA	Art. no.: H39-010
9.	Fault indicator lamp **Important: follow wiring diagram!**	Not supplied
10.	Thermal store PSB	As price list
11.	District heating pipe	Not supplied



System supplying a maximum of 3 properties (suitable for POWERCHIP, BIOCOM and POWERCORN)
District heating pipe function CP (charging pump)
Per property – 1 outside-temperature based controller, 1 ECO DHW cylinder, 1 PS thermal store

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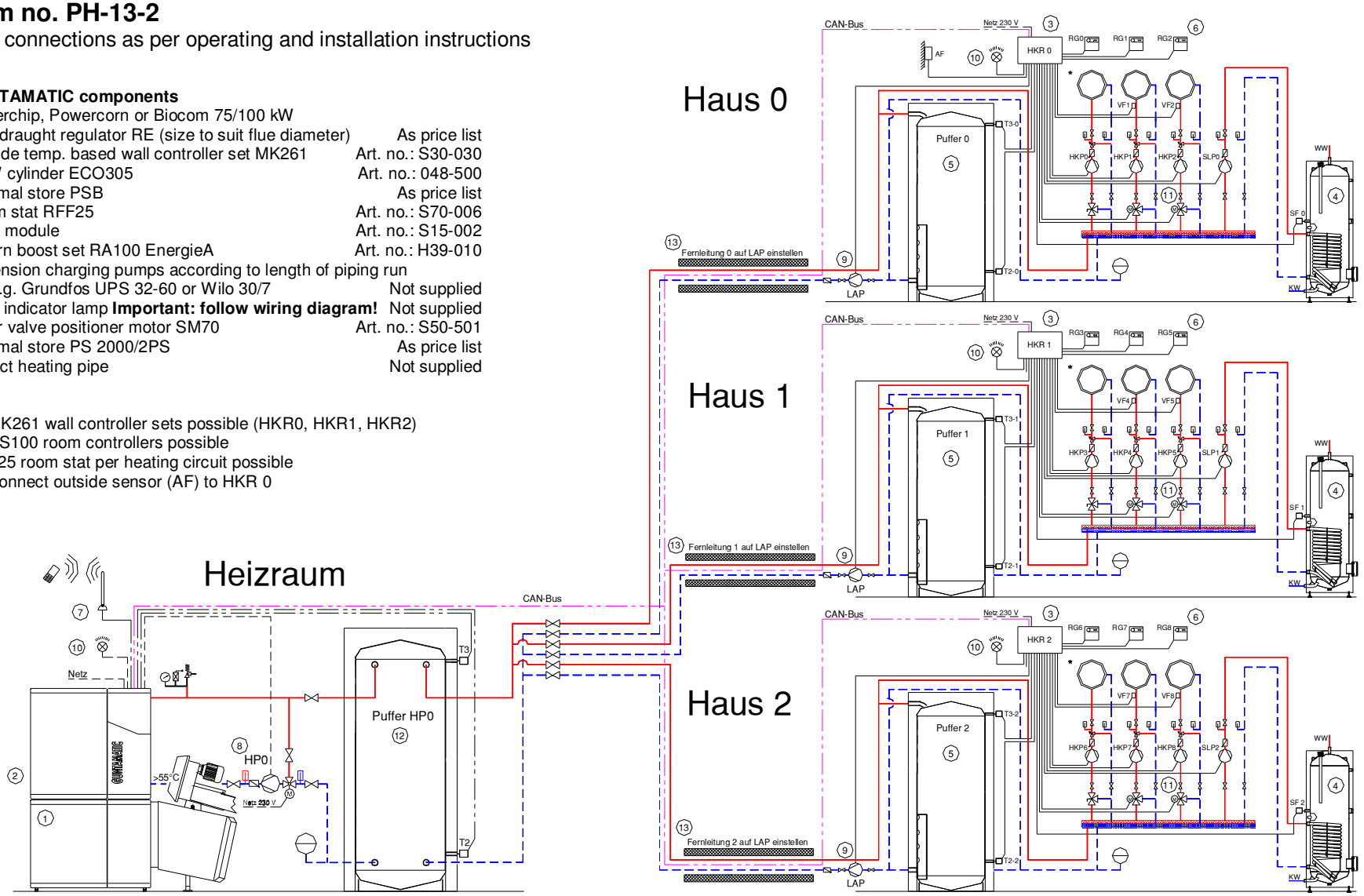
Diagram no. PH-13-2

Electrical connections as per operating and installation instructions

GUNTAMATIC components

1.	Powerchip, Powercorn or Biocom 75/100 kW	
2.	Flue draught regulator RE (size to suit flue diameter)	As price list
3.	Outside temp. based wall controller set MK261	Art. no.: S30-030
4.	DHW cylinder ECO305	Art. no.: 048-500
5.	Thermal store PSB	As price list
6.	Room stat RFF25	Art. no.: S70-006
7.	GSM module	Art. no.: S15-002
8.	Return boost set RA100 EnergieA	Art. no.: H39-010
9.	Dimension charging pumps according to length of piping run e.g. Grundfos UPS 32-60 or Wilo 30/7	Not supplied
10.	Fault indicator lamp **Important: follow wiring diagram!**	Not supplied
11.	Mixer valve positioner motor SM70	Art. no.: S50-501
12.	Thermal store PS 2000/2PS	As price list
13.	District heating pipe	Not supplied

max. 3 MK261 wall controller sets possible (HKR0, HKR1, HKR2)
max. 3 RS100 room controllers possible
one RFF25 room stat per heating circuit possible
Always connect outside sensor (AF) to HKR 0



System supplying a maximum of 3 properties (suitable for POWERCHIP, BIOCOM and POWERCORN)
District heating pipe function FP (feeder pump)
Per property – 1 outside-temperature based controller, 1 ECO DHW cylinder

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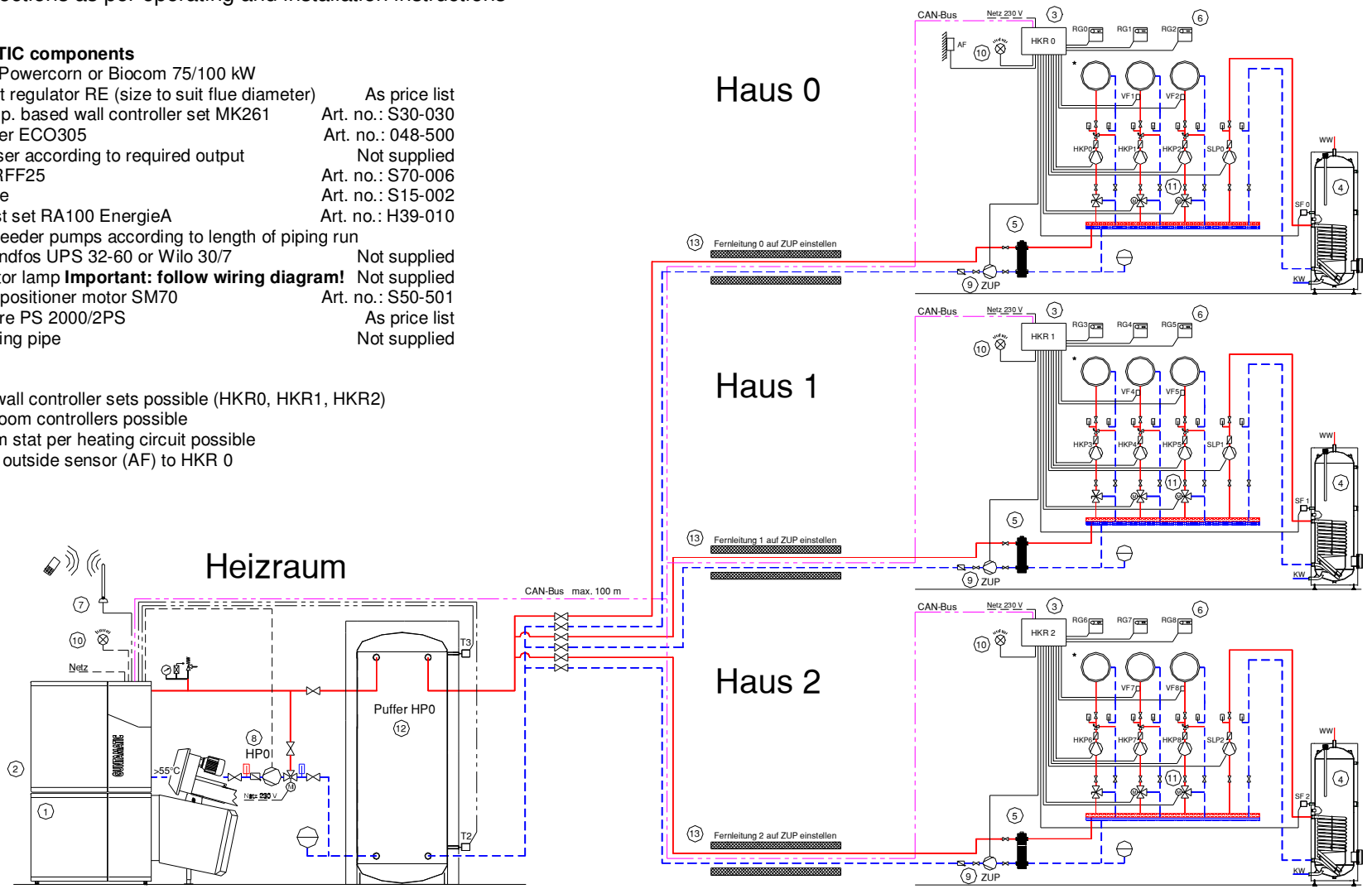
Diagram no. PH-14-2

Electrical connections as per operating and installation instructions

GUNTAMATIC components

1.	Powerchip, Powercorn or Biocom 75/100 kW	
2.	Flue draught regulator RE (size to suit flue diameter)	As price list
3.	Outside temp. based wall controller set MK261	Art. no.: S30-030
4.	DHW cylinder ECO305	Art. no.: 048-500
5.	Flow equaliser according to required output	Not supplied
6.	Room stat RFF25	Art. no.: S70-006
7.	GSM module	Art. no.: S15-002
8.	Return boost set RA100 EnergieA	Art. no.: H39-010
9.	Dimension feeder pumps according to length of piping run e.g. Grundfos UPS 32-60 or Wilo 30/7	Not supplied
10.	Fault indicator lamp **Important: follow wiring diagram!**	Not supplied
11.	Mixer valve positioner motor SM70	Art. no.: S50-501
12.	Thermal store PS 2000/2PS	As price list
13.	District heating pipe	Not supplied

max. 3 MK261 wall controller sets possible (HKR0, HKR1, HKR2)
max. 3 RS100 room controllers possible
one RFF25 room stat per heating circuit possible
Always connect outside sensor (AF) to HKR 0



System supplying a maximum of 3 properties (suitable for POWERCHIP, BIOCOM and POWERCORN)
District heating pipe function TSP(thermal store pump)
Per property – 1 outside-temperature based controller, 1 ECO DHW cylinder, 1 PS thermal store

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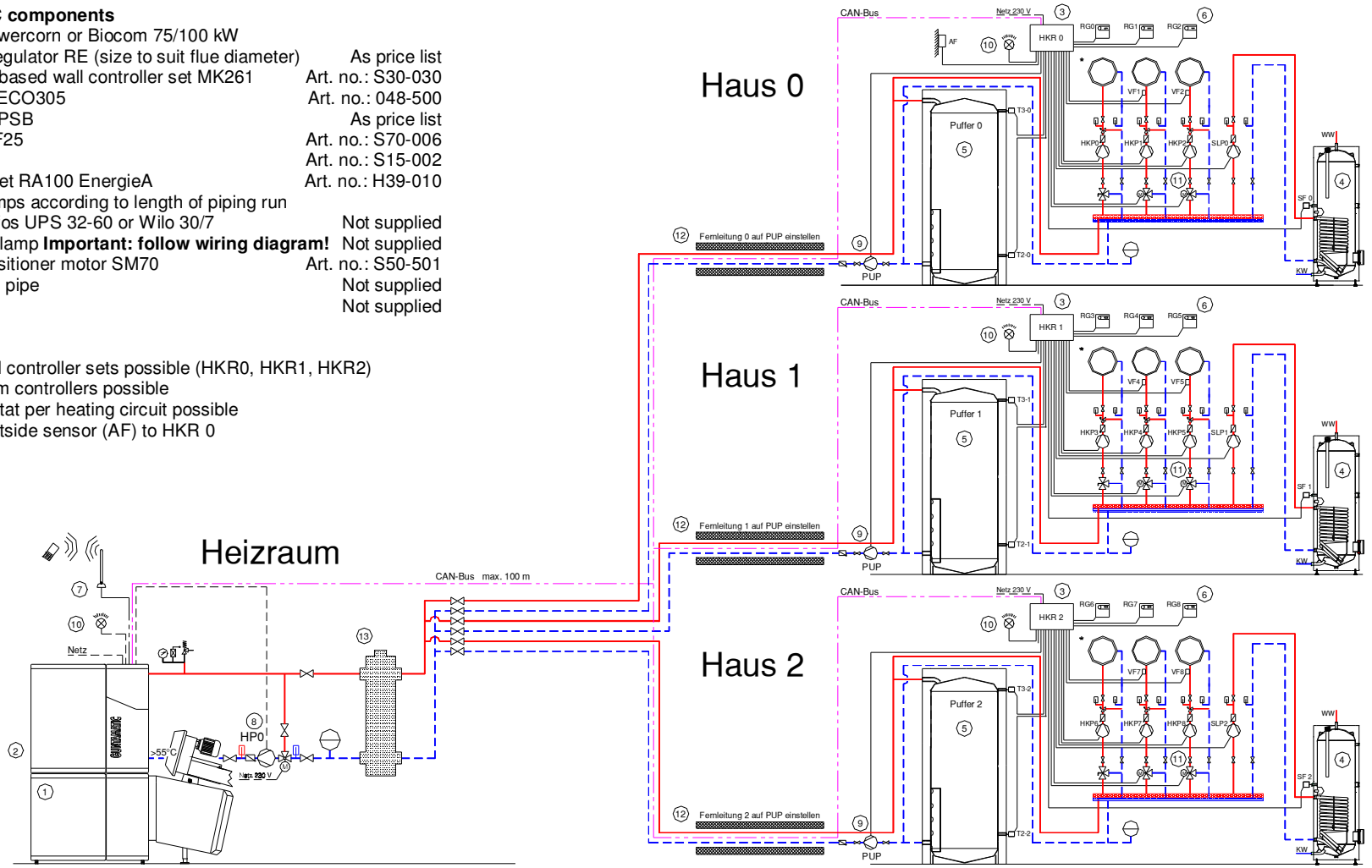
Diagram no. PH-15-2

Electrical connections as per operating and installation instructions

GUNTAMATIC components

1.	Powerchip, Powercorn or Biocom 75/100 kW	
2.	Flue draught regulator RE (size to suit flue diameter)	As price list
3.	Outside temp. based wall controller set MK261	Art. no.: S30-030
4.	DHW cylinder ECO305	Art. no.: 048-500
5.	Thermal store PSB	As price list
6.	Room stat RFF25	Art. no.: S70-006
7.	GSM module	Art. no.: S15-002
8.	Return boost set RA100 EnergieA	Art. no.: H39-010
9.	Dimension pumps according to length of piping run e.g. Grundfos UPS 32-60 or Wilo 30/7	Not supplied
10.	Fault indicator lamp **Important: follow wiring diagram!**	Not supplied
11.	Mixer valve positioner motor SM70	Art. no.: S50-501
12.	District heating pipe	Not supplied
13.	Flow equaliser	Not supplied

max. 3 MK261 wall controller sets possible (HKR0, HKR1, HKR2)
max. 3 RS100 room controllers possible
one RFF25 room stat per heating circuit possible
Always connect outside sensor (AF) to HKR 0



Sequential boiler control system (boiler cascade system) for maximum of 4 boilers
(suitable for POWERCHIP, BIOCOM and POWERCORN)

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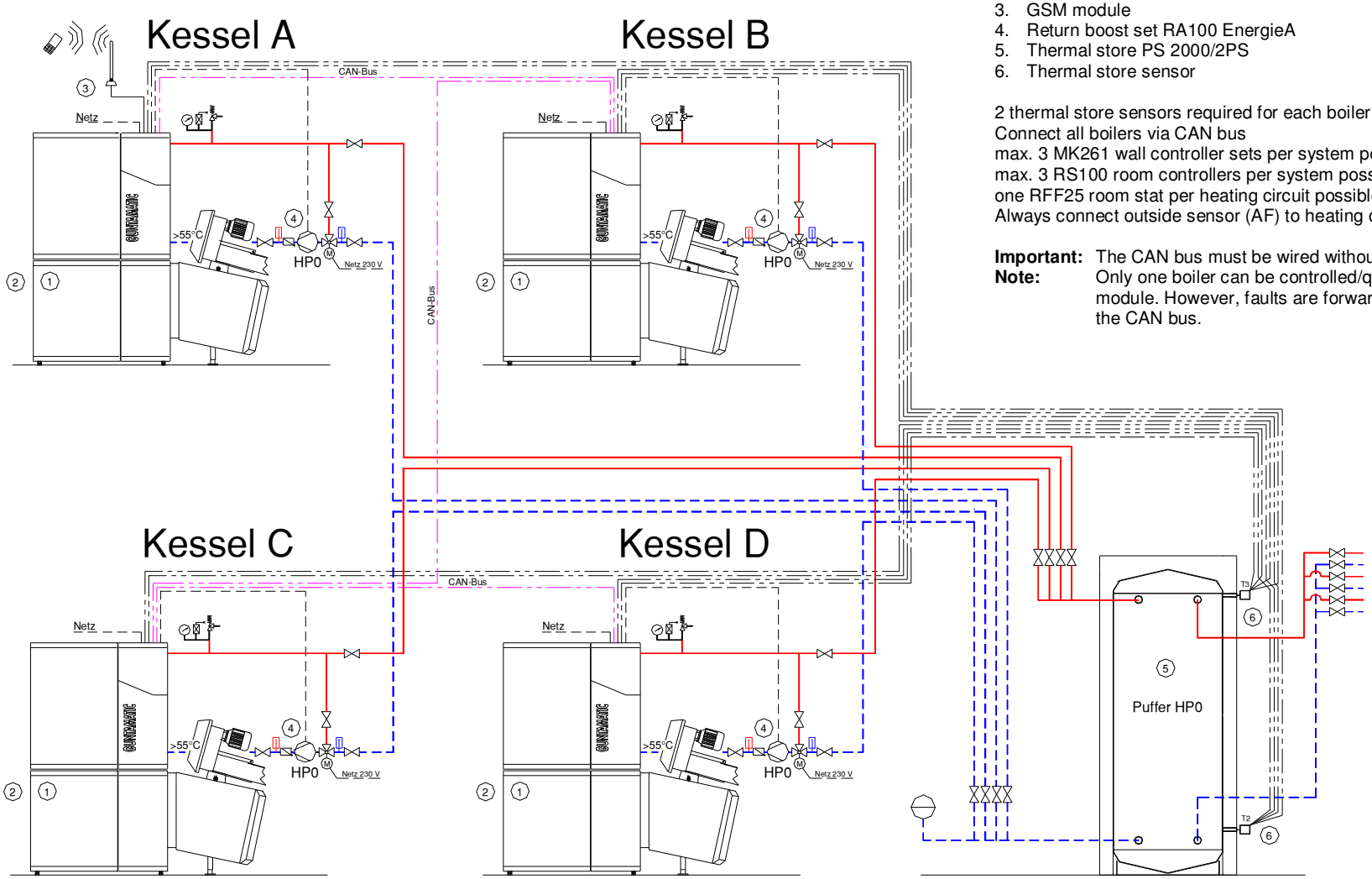
Diagram no. PH-16-2

Electrical connections as per operating and installation instructions



GUNTAMATIC components

1.	Powerchip, Powercorn or Biocom 75/100 kW	
2.	Flue draught regulator RE (size to suit flue diameter)	As price list
3.	GSM module	Art. no.: S15-002
4.	Return boost set RA100 EnergieA	Art. no.: H39-010
5.	Thermal store PS 2000/2PS	As price list
6.	Thermal store sensor	Art. no.: S70-003

2 thermal store sensors required for each boiler
Connect all boilers via CAN bus
max. 3 MK261 wall controller sets per system possible (HKR0, HKR1, HKR2)
max. 3 RS100 room controllers per system possible
one RFF25 room stat per heating circuit possible
Always connect outside sensor (AF) to heating circuit controller 0 (HKR 0)

Important: The CAN bus must be wired without connecting the + terminal.
Note: Only one boiler can be controlled/queried remotely via the GSM module. However, faults are forwarded to the GSM module via the CAN bus.

Heating circuit installation:

Diagram PH-13-2
with charging pump (LAP) and thermal store

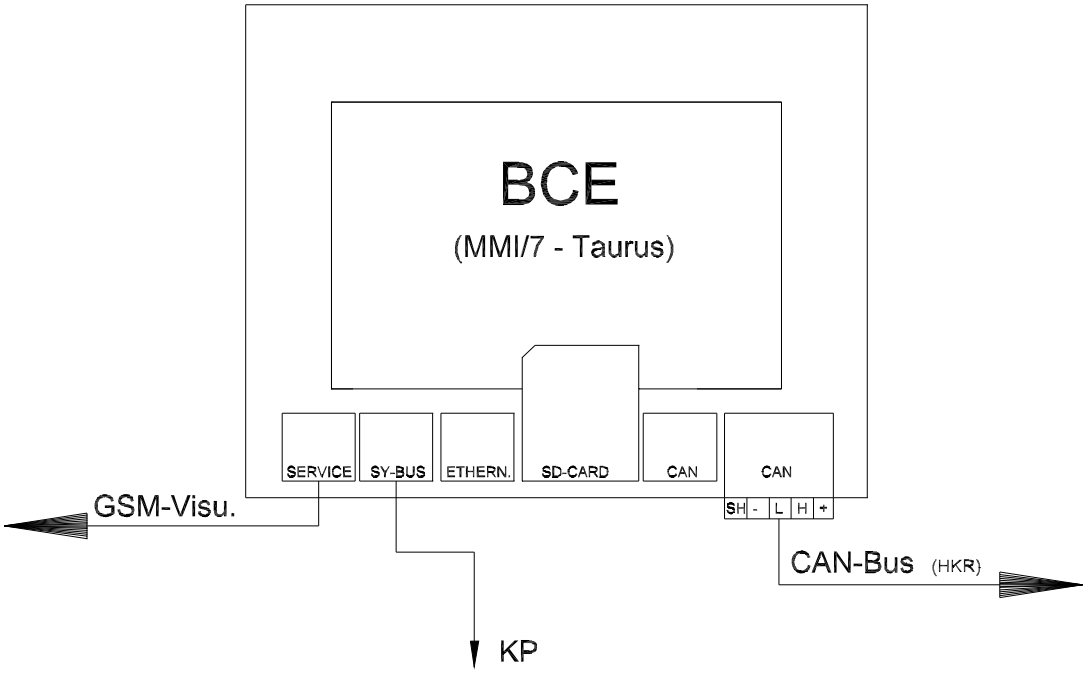
Diagram PH-14-2
with feeder pump (ZUP) and without thermal store

7 Electrical wiring diagram

7.1 Control panel (use only flexible cables for wiring)

TH-07-01-00-00-01-IAEN

BCE = Display and control unit (touch screen)
Service = Connection socket
SY-BUS = Connection socket/cable connection betw. BCE and boiler PCB
Ethern. = Connection socket (inactive)
SD-Card = Slot for SD memory card
CAN = Connection socket for CAN bus
CAN-Bus = Cable connection between BCE and digital room controller or wall controller
GSM = Facility for connecting a GSM module
Visu. = Facility for connecting a graphical boiler interface
KP = Cable connection to boiler circuit board (SY bus)



Caution: It is imperative that the vacuum pipes are earthed on the vacuum pump and the outfeed auger.

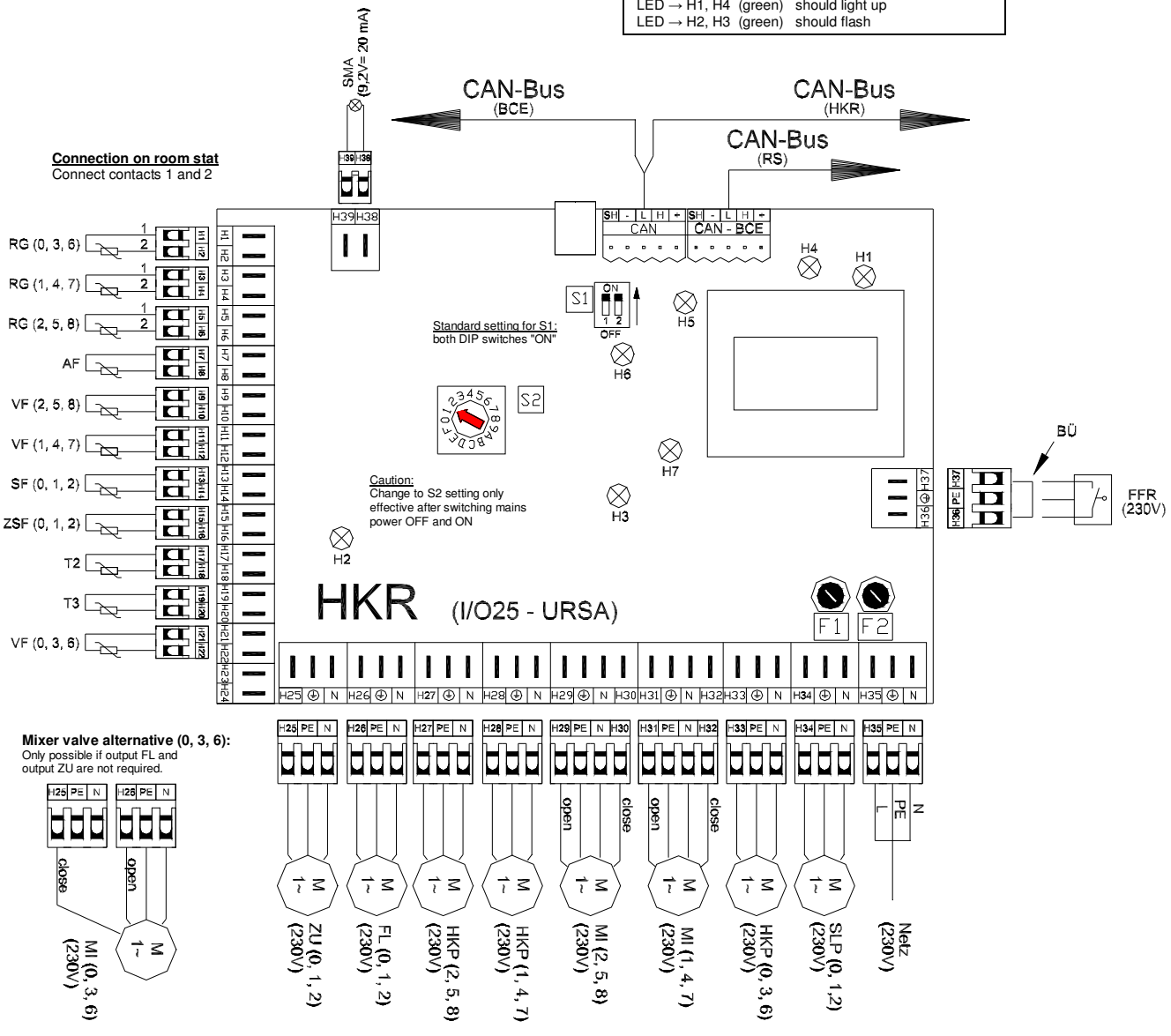
7.2 Wall controller set MK261 (use only flexible cables for wiring)

PH-07-02-00-00-01-IAEN

RG 0-8	= Analogue room stat input for HC 0-8	Connector: H1/H2 – H3/H4 - H5/H6
AF	= **Connect only if not connected on boiler PCB**	Connector: H7/H8
VF 1, 2, 4, 5, 7, 8	= Flow sensor input for heating circuit 1, 2, 4, 5, 7, 8	Connector: H9/H10 - H11/H12
SF 0-3	= Cylinder sensor input for DHW cylinder 0, 1, 2	Connector: H13/H14
ZSF 0-2	= Supplementary cylinder sensor input	Connector: H15/H16
T2	= Thermal store bottom sensor input	Connector: H17/H18
T3	= Thermal store top sensor input	Connector: H19/H20
VF 0, 3, 6	= Flow temperature sensor input for heating circuits 0, 3, 6	Connector: H21/H22
ZU 0, 1, 2	= Output programmable as ext. burner or DHW cylinder	Connector: H25/PE/N
FL 0, 1, 2	= Output for district heating pipe pump	Connector: H26/PE/N
HKP 0-8	= Output for heating circuit pump 0-8	Connector: H27/PE/N (H28, H33)
Mi 1, 2, 4, 5, 7, 8	= Output for mixer valve 1, 2, 4, 5, 7, 8	Connector: H29/PE/N/H30, H31/PE/N/H32
SLP 0-3	= Output for cylinder charging pump 0, 1, 2	Connector: H34/PE/N
Netz	= Power supply input (230VAC)	Connector: H35/PE/N
FFR	= District heating pipe enabling switch	Connector: H36/PE/H37
SMA	= Output for fault signal (9.2V= 20mA)	Connector: H38/H39
RS	= Output for digital room controller	Connector: CAN-BCE

Fuse assignment for wall controller		
F1	T 0.63A	Power supply for electronics
F2	T 6.30A	HKP 0, HKP 1, HKP 2, MI 1, MI 2, SLP 0

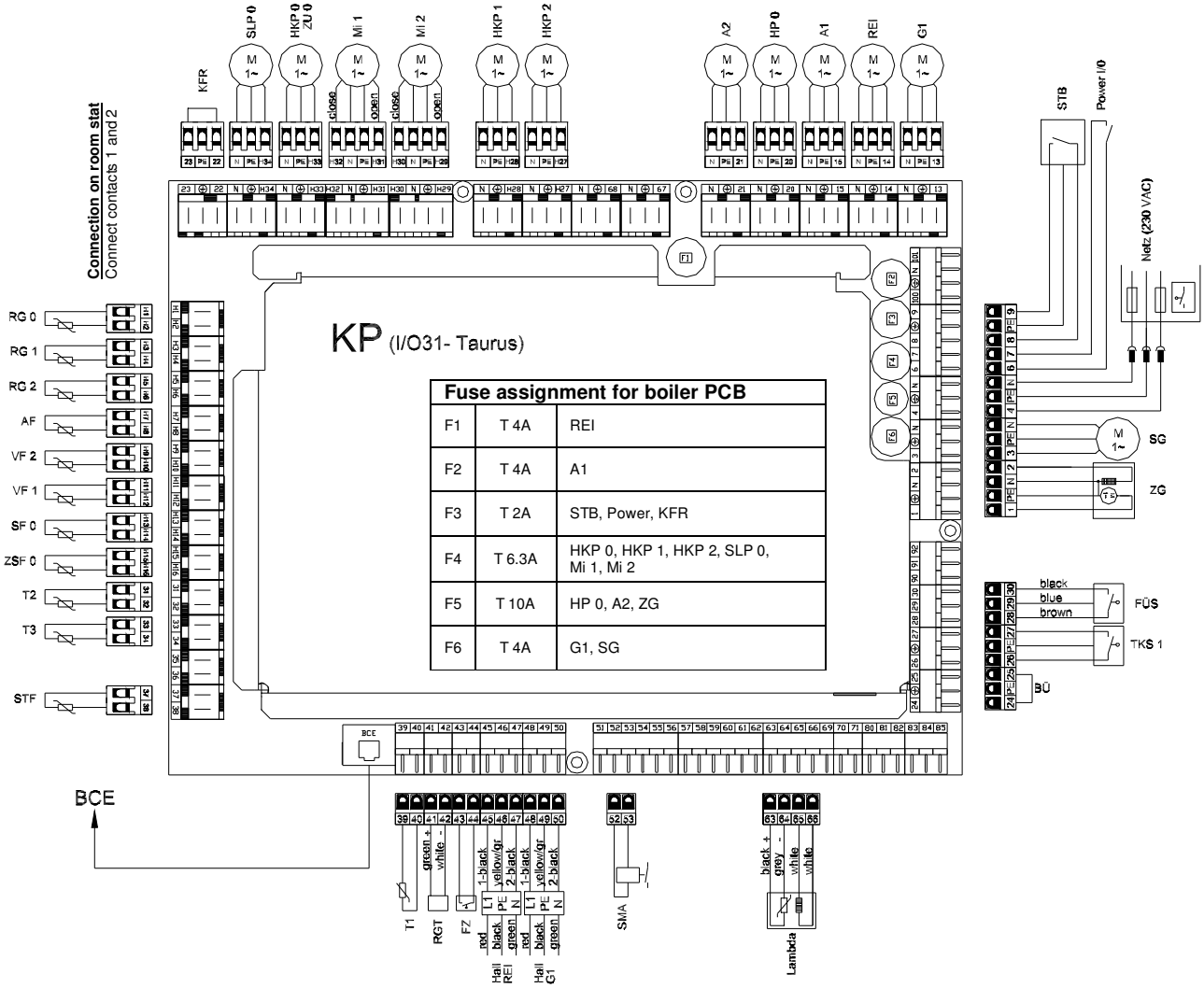
Function of LEDs
Controller on, CAN bus cable correctly connected:
LED → H5 (green) should light up LED → H6, H7 (orange) should flash
Mains power and fuse F1 are OK
LED → H1, H4 (green) should light up LED → H2, H3 (green) should flash


SMA (9.2V= 20 mA)
CAN-Bus (BCE)
CAN-Bus (HKR)
CAN-Bus (RS)
Connection on room stat
Connect contacts 1 and 2
RG (0, 3, 6)
RG (1, 4, 7)
RG (2, 5, 8)
AF
VF (2, 5, 8)
VF (1, 4, 7)
SF (0, 1, 2)
ZSF (0, 1, 2)
T2
T3
VF (0, 3, 6)
Standard setting for S1: both DIP switches "ON"
Caution: Change to S2 setting only effective after switching mains power OFF and ON
HKR (I/O25 - URSA)
BÜ
FFR (230V)
Mixer valve alternative (0, 3, 6): Only possible if output FL and output ZU are not required.
close
open
MI (0, 3, 6) (230V)
ZU (0, 1, 2) (230V)
FL (0, 1, 2) (230V)
HKP (2, 5, 8) (230V)
HKP (1, 4, 7) (230V)
MI (2, 5, 8) (230V)
MI (1, 4, 7) (230V)
HKP (0, 3, 6) (230V)
SLP (0, 1,2) (230V)
Netz (230V)

7.3 Boiler circuit board (use only flexible cables for wiring)

BC-07-03-00-00-01-IAEN

RG 0 (1, 2)	= Analogue room stat input for HC 0 (1, 2)	Connector: H1/H2 (H3/H4, H5/H6)
AF	= Outside sensor input	Connector: H7/H8
VF 2 (1)	= Flow temperature sensor input for heating circuit 2 (1)	Connector: H9/H10 (H11/H12)
SF 0	= Cylinder sensor input for DHW cylinder 0	Connector: H13/H14
ZSF 0	= Supplementary cylinder sensor input (output HK 0 as DHW)	Connector: H15/H16
T1	= Boiler sensor input	Connector: 39/40
T2	= Thermal store bottom sensor input	Connector: 31/32
T3	= Thermal store top sensor input	Connector: 33/34
STF	= Stoker sensor input (stoker temperature monitor)	Connector: 37/38
RGT	= Flue gas temp. sensor input (ensure correct polarity)	Connector: 41/42
FZ	= Fill level switch input (fire box monitor)	Connector: 43/44
Hall REI	= Hall-effect sensor input from drive motor REI	Connector: 45/46/47
Hall G1	= Hall-effect sensor input from drive motor G1	Connector: 48/49/50
SMA	= Output for fault signal (24V DC 200mA)	Connector: 52/53
Lambda	= Oxygen sensor input	Connector: 63/64/65/66
TKS 1	= Input for door switch 1 (firebox door/ash box)	Connector: 26/PE/27
FÜS	= Fill-level sensor input	Connector: 28/29/30
ZG	= Ignition fan output (1=Fan, 2=Igniter)	Connector: 1/PE/N/2
SG	= Flue draught fan output	Connector: 3/PE/N
Netz	= Power supply input (230VAC)	Connector: 4/PE/N
Power I/O	= Power switch input/output	Connector: 6/7
STB	= STL input/output	Connector: 8/PE/9
G1	= Output for stoker drive motor	Connector: 13/PE/N
REI	= Output for drive motor for stepped grate and grate cleaner	Connector: 14/PE/N
A1	= Output for fuel outfeed drive motor	Connector: 15/PE/N
HP 0	= Programmable special output	Connector: 20/PE/N
A2	= Output for vacuum pump	Connector: 21/PE/N
KFR	= Boiler enabling switch input	Connector: 22/PE/23
HKP 2 (1, 0)	= Output for heating circuit pump 2 (1, 0)	Connector: H27/PE/N H28, H33
ZU 0	= Programmable as 2nd DHW cylinder or ext. burner	Connector: H33/PE/N
Mi 2 (1)	= Output for mixer valve 2 (1)	Connector: H29/PE/N/H30, H31/PE/N/H32)
SLP 0	= Output for cylinder charging pump 0	Connector: H34/PE/N



8 Technical data

8.1 BIOCOM 30/40/50

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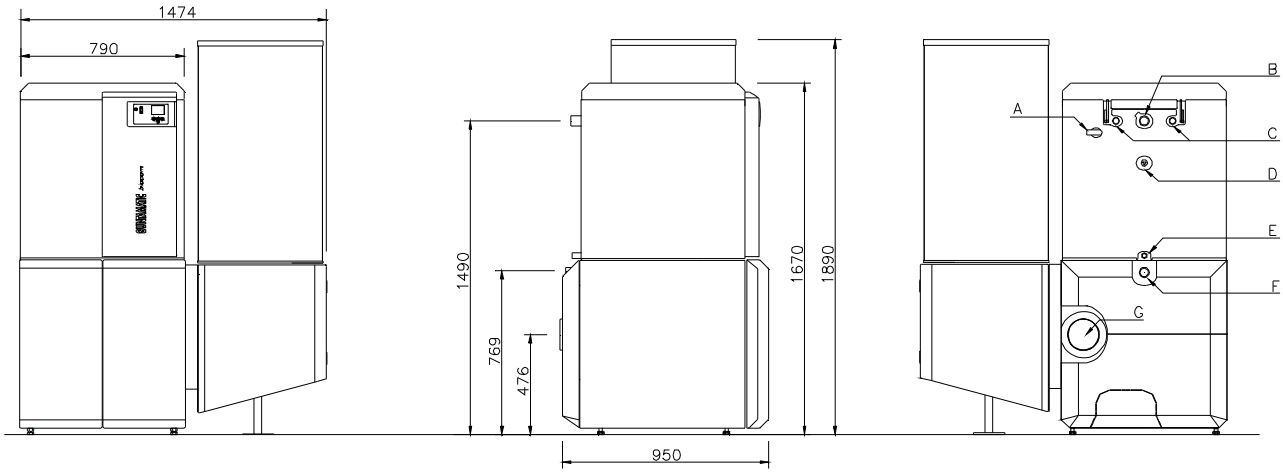

Type	Biocom 30	Biocom 40	Biocom 50	
Fuel	Pellets, 6mm	Pellets, 6mm	Pellets, 6mm	ÖNORM M7135
Boiler output	7 - 30	9 - 40	12 - 50	kW
Required flue draught Boiler temperature Return temperature Return boost	0,15 50 – 80 > 40 → Feeder pump if thermal store connected	0,15 50 – 80 > 40 → Feeder pump if thermal store connected	0,15 50 – 80 > 40 → Feeder pump if thermal store connected	mbar °C °C
Water capacity Operating pressure	128 max. 3	128 max. 3	147 max. 3	litres bar
Water system resistance Temperature difference 20 K	Through-flow rate 1290 Water temp. 22.5 Differential pressure 3.8	Through-flow rate 1710 Water temp. 38.6 Differential pressure 13.5	Through-flow rate 2180 --- Differential pressure 6.2	kg/h °C mbar
Water system resistance Temperature difference 10 K	Through-flow rate 2570 Water temp. 22.5 Differential pressure 14.2	Through-flow rate 3430 Water temp. 38.7 Differential pressure 28.3	Through-flow rate 4257 --- Differential pressure 24.7	kg/h °C mbar
"Large" ash pan "Small" ash pan	60 12	60 12	60 12	litres litres
A = Temp.-relief heat exch. B = Return C = Temp.-relief heat exch. D = STL, boiler sensor E = Drain F = Flow G = Flue connecting pipe dia.	Sensor 5/4“ 3/4“ Sensor 1/2“ 5/4“ 150	Sensor 5/4“ 3/4“ Sensor 1/2“ 5/4“ 150	Sensor 5/4“ 3/4“ Sensor 1/2“ 5/4“ 150	 Inches Inches Inches Inches mm
Overall weight w/o Stoker unit Weight of bottom box Weight of heat exchanger Weight of stoker unit Weight of drive unit Weight per m of outfeed auger	 550 340 180 70 26 40	 553 340 183 70 26 40	 585 340 215 70 26 40	 kg kg kg kg kg kg
Temperature-relief heat exchanger	Yes	Yes	Yes	
Power supply	230 V 13 A	230 V 13 A	230 V 13 A	

BIOCOM 75/100

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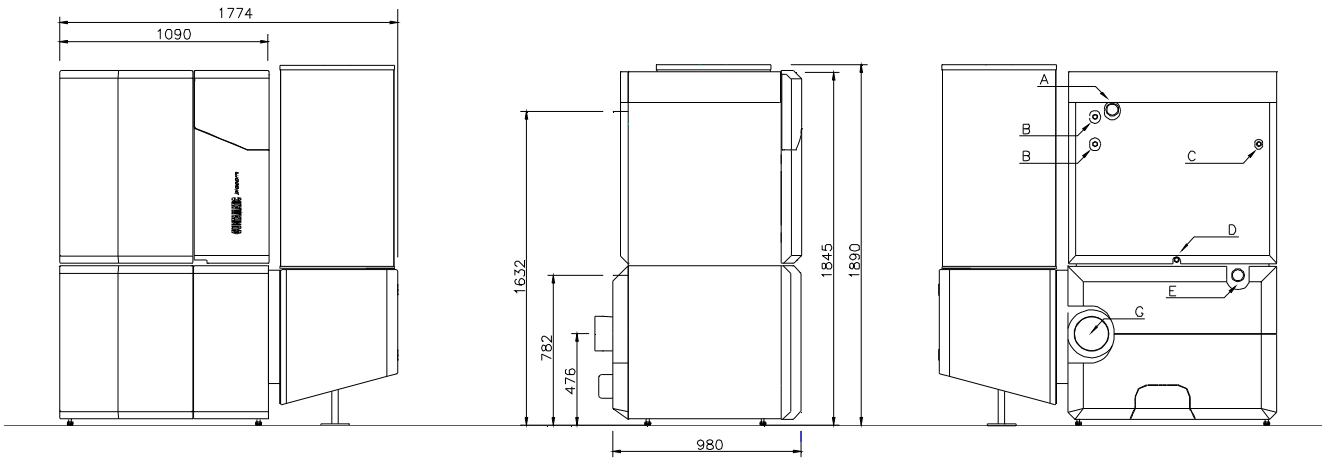

Type	Biocom 75	Biocom 100	
Fuel	Pellets, 6mm	Pellets, 6mm	ÖNORM M7135
Boiler output	22 - 75	22 -100	kW
Required flue draught Boiler temperature Return temperature Return boost	0.15 60 - 80 > 45 → Feeder pump if thermal store connected	0.15 60 - 80 > 45 → Feeder pump if thermal store connected	mbar °C °C
Water capacity Operating pressure	256 max. 3	256 max. 3	litres bar
Water system resistance Temperature difference 20 K	Through-flow rate 4240 Water temp. 24.2 Differential pressure 2.5	Through-flow rate 4240 Water temp. 24.2 Differential pressure 2.5	kg/h °C mbar
Water system resistance Temperature difference 10 K	Through-flow rate 8490 Water temp. 24.2 Differential pressure 6.2	Through-flow rate 8490 Water temp. 24.2 Differential pressure 6.2	kg/h °C mbar
Ash pan, grate Ash pan, "heat exchanger"	80 12	80 12	litres litres
A B C D E G	Flow, 2" Temp.-relief heat exch., 3/4" Supplementary sleeve, 2"Drain, 1/2" Return, 2" Flue connection pipe dia. 180	Flow, 2" Temp.-relief heat exch., 3/4" Supplementary sleeve, 2"Drain, 1/2" Return, 2" Flue connection pipe dia. 180	Inches Inches Inches Inches Inches mm
Overall weight (w/o stoker unit) Weight of bottom box Weight of heat exchanger Weight of stoker unit Weight of drive unit Weight per m of outfeed auger	865 430 405 70 26 40	865 430 405 70 26 40	kg kg kg kg kg kg
Temperature-relief heat exchanger	Yes	Yes	
Power supply	230 V / 13 A	230 V / 13 A	

8.2 FLEX system outfeed

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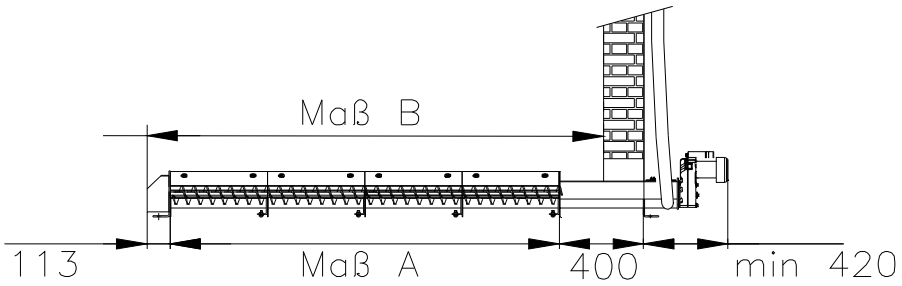

Dimension A > Auger length	Dimension B > Storeroom internal clear length
FLEX 1.0 m	1080 mm – 1559 mm
FLEX 1.5 m	1560 mm – 2039 mm
FLEX 2.0 m	2040 mm – 2519 mm
FLEX 2.5 m	2520 mm – 2999 mm
FLEX 3.0 m	3000 mm – - 3479 mm
FLEX 3.5 m	3480 mm – 3959 mm
FLEX 4.0 m	3960 mm – 4439 mm
FLEX 4.5 m	4440 mm – 4919 mm
FLEX 5.0 m	4920 mm - .

Wall opening for auger: Width 330 mm
Height 250 mm

8.3 BOX system outfeed

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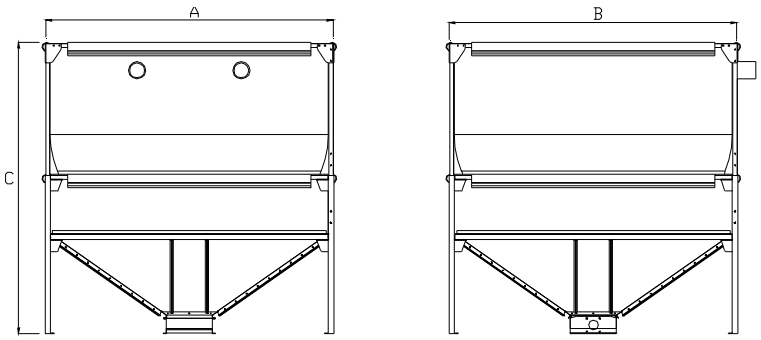

	Dimension A - B	Dimension C (variable)	Hopper capacity in m³	Hopper capacity in t
BOX 7.5	210 cm x 210 cm	180 cm - 250 cm	5.0 m³ to 7.5 m³	3.0 t to 4.7 t
BOX 8.3	170 cm x 290 cm	180 cm - 250 cm	6.1 m³ to 8.3 m³	4.0 t to 5.4 t
BOX 11	250 cm x 250 cm	180 cm - 250 cm	8.3 m³ to 11 m³	5.0 t to 6.7 t
BOX 14	290 cm x 290 cm	180 cm - 250 cm	10.2 m³ to 14.1 m³	6.5 t to 9.1 t

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